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Klamath Bald Eagle Habitat Management Area

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KLAMATH RANGER DISTRICT

KLAMATH BALD EAGLE HABITAT MANAGEMENT PLAN

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ENVIRONMENTAL ASSESSMENT

DECISION NOTICE

FINDING OF NO SIGNIFICANT IMPACT

The Endangered Species Act of 1973, as amended 1978-79, and the National Environmental Policy Act mandate the protection and management of the bald eagle and its habitat on the Klamath Ranger District of the Winema National Forest. Use of the area by bald eagles is concentrated along the edge of Upper Klamath Lake and its adjacent marshes and forested areas. Due to the significance of this area in the life history of the bald eagle, there is a need for a comprehensive and long range plan for management of nesting, foraging and roosting areas on the Klamath Ranger District. A comparative analysis of presently successful nesting and foraging habitat within the project area and similar areas was made and habitat management objectives developed.

Based on the analysis and evaluation described in the environmental assessment, it is my decision to adopt Alterntive C for the management of the Klamath Bald Eagle Habitat Management Area. This alternative calls for management of the timber stands utilizing a combination of silvicultural methods to provide suitable nesting, foraging and roosting habitat distributed uniformly throughout the project area; planned acquisition or negotiated easements on some private inholdings to reduce or eliminate potential disturbing activites; maximize timber harvest volumes commensurate with habitat management objectives; and provide a high degree of protection to other environmental and human resources. Other alternatives considered were (A) No Timber Harvest, which would have eliminated all silvicultural activities, including timber harvest, and severely limited recreational opportunities, (B) Present Management Direction, (D) Even-Aged Management which would have allowed only those silvicultural methods and (E) Uneven-Aged Management which would have allowed only the use of those silvicultural methods. Alternatives D and E were very similar in many respects although the resulting timber stands and their effect on bald eagles would have been quite different.

Alternative C best meets the conditions established by the Evaluation Criteria while meeting all of the habitat objectives established in the Introduction and at the same time best meets the needs of other resources in the project area with the least effect on the environment and human resources.

I have determined, based on the environmental analysis, that this is not a major Federal action that would significantly affect the quality of the human environment. Therefore, an environmental impact statement is not needed. This determination was made considering the following factors: (a) there are no irreversible resource commitments, although there will be some irretrievable loss of timber harvest volume; (b) there are no apparent adverse cumulative or secondary effects; (c) the physical and biological effects are limited to the area of planned development and use; and (d) no known threatened or endangered plants or animals are within the affected area except the species for which the project has been developed.

This action is in conformance with the Timber Resource Plan, McLoughlin-Klamath Plan and other higher order plans. A formal consultation process has been completed with the Endangered Species Program office of the U.S. Fish and Wildlife Service in Boise, Idaho.

Project implementation will take place no sooner than 30 days from the date of this decision.

This decision is subject to administrative review (appeal) pursuant to 36 CFR 211.19. Copies of the Environmental Assessment are available for review in the Forest Supervisor's Office and the Klamath Ranger District.

July 23, 1981 Arthur W. DuFault

Date

ARTHUR W. DUFAULT
Forest Supervisor
Winema National Forest

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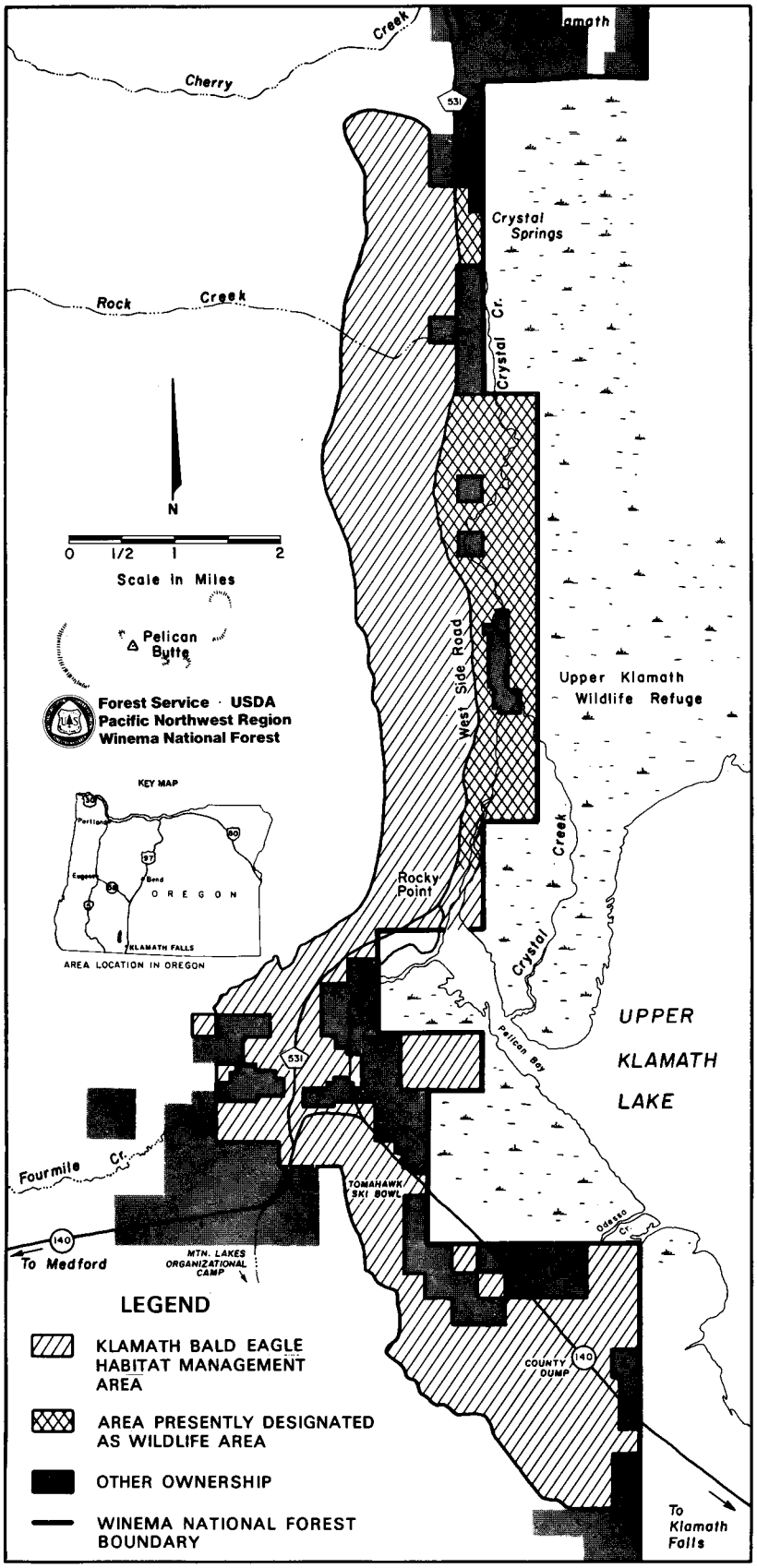

VICINITY MAP

INTRODUCTION

The Endangered Species Act of 1973, as amended 1978-79, established the framework for the protection and management of species listed in the Federal Register as threatened or endangered. In Oregon, the Northern bald eagle is presently listed as threatened. The Klamath Ranger District of the Winema National Forest is located along the western edge of Upper Klamath Lake which has historically been an area of bald eagle activity, especially during the spring and summer nesting seasons.

Through the Endangered Species Act and the National Environmental Policy Act, the Forest Service is mandated to provide for the protection and management of the bald eagle and its habitat. Since the Klamath Ranger District is such an important bald eagle habitat, there is a need for a comprehensive and long range plan of habitat management and protection to ensure that its current status is not jeopardized and there is sufficient habitat available for an expanding population.

Eagle activity does not occur over all parts of the Ranger District, although low levels of activity occur around Lake of the Woods, Mountain Lakes Wilderness Area and Sky Lakes Wilderness Study Area. The primary area of eagle activity is that part of the District which forms a corridor, no part of which is more than 1-1/2 miles from the nearest open water associated with Upper Klamath Lake. Most of the eagles using the area are probably year-round residents since there is an abundant prey base consisting primarily of fish and waterfowl.

Within this corridor there are presently 16 known eagle nests including one on a Weyerhaeuser Company inholding. In 1980, three young were fledged from six nesting attempts. The objective of the Endangered Species Act is to improve the

status of a listed species through an increase in overall numbers, habitat protection, or both, to a point where that species is no longer threatened or endangered throughout all, or a significant portion, of its range. The purpose of this project is to assist in that effort through habitat manipulation, nest site management and foraging area protection within the Klamath Bald Eagle Habitat Management Plan.

We believe that a stable or increasing number of active nests or fledged young from year to year is a necessary, but not sufficient, objective as an idicator of the overall success of such an undertaking. Specific habitat objectives (characteristics) which can be achieved through land and vegetation manipulation are also needed. These habitat characteristics, or objectives, must reflect the known habitat requirements of bald eagles for the project area. The assumption is made that if successful nesting habitat presently used on the Klamath District and similar areas is analyzed in order to describe the conditions of existing suitable nesting habitat, that these conditions can be used as a model for replicating similar habitat elsewhere through planned management activities. Lehman (1980) has done a very thorough study of nest site characteristics in California. Northern California, especially the interior portion, is ecologically similar to the Klamath Basin. Some of the nest site characteristics from the Klamath District are comparable to those in similar habitat in California as described by Lehman (1980). Similarities include nest tree species, tree height, nest height, DBH, distance from water and stand crown closure. After additional literature review on bald eagle habitat needs, the following habitat objectives were developed:

1. Target stands (suitable nesting habitat) will be developed and managed to occur on at least 50% of each contiguous 40 acre tract and will be uniformly distributed throughout the project area.

2. Target stands will be multi-storied with 20% - 40% overstory crown closure.

3. Trees suitable for nesting by eagles will be maintained at an average of 10 per acre in target stands with a range of 5 to 15 trees per acre.

4. Potential nest trees in target stands will exceed 28 inches DBH, with an average of 38 inches DBH.

5. Preferred nest tree species, in order of priority, will be ponderosa pine, sugar pine and Douglas-fir.

The Environmental Assessment (EA) for the Klamath Bald Eagle Habitat Management Area provides an overview of the management of bald eagle habitat and the various resources affecting it within the planning area. The EA provides resource information, constraints and management direction for the project area. Major issues, concerns and opportunities to be dealt with will be maintenance of existing habitat, improvement of non-suitable habitat, selection of appropriate silvicultural practices, monitoring of activities for their effect on eagles, effects on timber harvest, recreation and other human use levels, and existing land ownership patterns. As the objectives outlined above are met, more habitat will become suitable for nesting, roosting and possibly foraging. We believe that the project area is capable of supporting eight to 10 active nest sites on a long-term basis when the EA objectives are accomplished. The development of this EA has included input by the Bald Eagle Working Team which is a subcommittee of the Washington/Oregon Interagency Wildlife Committee, public involvement, review by the Region 6 Non-Game Coordinator, Oregon Department of Fish and Wildlife, and a formal consultation with the U.S. Fish and Wildlife Service.

The proposed implementation date is March 1, 1981, or as soon as the EA has been approved by the responsible official and the consultation process completed by the Fish and Wildlife Service.

The planning area lies within the Malone (3404), Camp (3601), Lost (3402), Pelican (3403) and Cherry (3205) TRI compartments including the area shown on the Vicinity Map and covers approximately 10,867 acres.

AFFECTED ENVIRONMENT

1. Topography

Most of the planning area has slopes averaging 20% - 40%. There are two areas with slopes in excess of 50%; one just south of the Tomahawk Ski Bowl and the other west of Crystal Springs. These are very steep and have had few past timber harvest activities. There are three areas with slopes under 10%. These areas are near Odessa, the Rocky Point Community, and the area surrounding Rock Creek. All aspects are represented with overall drainage to the east. Small parts of the area are drained by Fourmile and Rock Creeks. Elevational limits are 4100 feet (lake level) and 5500 feet. There is a large area of wetlands in the Malone Springs area.

2. Existing Management Direction

There are 25 different land management directions which affect some or all of the planning area in addition to the standard component of commercial forest land. Approximately one-third of the area is classified as standard commercial forest land. About 600 acres west of Crystal Springs is classed as marginal due to steepness. Other portions of the area have special cut designations (modified or no yield) for Streamside Management Units,

Wildlife, Recreation, Cultural Resources and Visual Resource Management. There are several areas under Special Use Permits which are within the Unregulated Component with no programmed yield. Refer to the Land Status section of this document for details concerning special use permits. Refer to Appendices J-3 and J-6 for locations of no cut and restricted cut areas.

3. Wildlife

The strategic location of the planning area adjacent to Upper Klamath Lake and its rich wetlands makes this area a unique habitat for a wide variety of wildlife. The bald eagle is the only known species occurring in the area that is listed in the Federal Register as threatened. There are currently 16 known eagle nests, including seven active nests in 1981. There is a bald eagle wintering area near Crystal Springs which has been utilized by up to 70 birds at one time.

The ecological features which make the project area useful as eagle habitat also make it useful habitat for a number of other specialized wildlife species. There is an area being managed for spotted owl habitat which is partially within the project area west of Crystal Springs. The spotted owl is designated as threatened by the State of Oregon, but is not included in the Federal Register list of treatened and endangered species. Management of this spotted owl habitat has been designed so there is a minimum of 300 acres of timber which meet old growth standards as established in the Winema Special Wildlife Habitat Situations (Refer to Appendix I) with two other adjacent areas as replacement stands. Harvest rotations within these three stands will be 300 years each at staggered intervals with a total of 900 acres in this rotation scheme. About 600 acres of the 900 acres are located within the planning area.

Eleven of the 15 known osprey nests on the Ranger District are located within the project area. Ospreys receive special management considerations as a Forest Service unique species. Three of these nests were active in 1980. There is also a great blue heron rookery and limited sandhill crane nesting within the area. The forested lakeshore provides nesting and rearing habitat for wood ducks, common mergansers and buffleheads in addition to several species of puddle ducks. Refer to Thomas (1979) for a more complete list of wildlife species occurring in these habitats.

4. Water

Most of the planning area is drained by short, intermittent streams which empty directly into Upper Klamath Lake. There are two perennial streams which flow through the area. Rock Creek is a Class III stream with a Winema Streamside Management Situation S-2 (modified yield). Fourmile Creek is a Class II stream with a S-3 Situation (full yield), although that portion of the creek within the planning area flows through wet lodgepole thickets and wet meadows. The remainder of the streams within the forested portion of the area are intermittent Class IV with S-3 Situations (full yield). There are three streams within the marsh adjacent to Upper Klamath: Crystal, Recreation and Odessa Creeks. These creeks are all fed by springs which maintain high water quality and ice-free areas throughout the year. Crystal and Recreation Creeks are Class I streams with S-1 Situations. Odessa Creek is a Class II stream with a S-1 Situation (no programmed yield). Pelican Cut is a dredged canal which provides boating access from a state maintained parking and launching area to Upper Klamath Lake. Refer to the TRI Aquatic subsystem for exact stream and spring locations.

5. Range

About 20 acres of the Pelican Range Allotment located along Fourmile Creek are within the project area. Some cattle trespass from adjacent private land has occurred thoughout the area in the past, especially in low water years in the marsh. There has been no conflict between grazing and eagle use in the past.

6. Vegetation

There are four forested ecotypes within the project area. Refer to Plant Associations of South Chiloquin and Klamath Ranger Districts for complete plant community descriptions and ecotype locations.

Mixed conifer/snowbrush-bearberry, CW-C2-15, occurs on the lower and mid-slope positions throughout the project area. This is a diverse community where ponderosa pine is a major climax species with fire, and white fir the major climax species in the absence of fire. Douglas-fir can also be a major climax species. Other important tree species include sugar pine and incense cedar. Chinquapin constitutes the greatest amount of brush cover with snowbrush, manzanita and squaw carpet contributing additional ground cover. This is a highly productive commercial site for ponderosa pine, white fir and Douglas-fir and is generally overstocked with white fir and Douglas-fir, thus offering a wide range of opportunities for thinning. Overstocking tends to exclude ponderosa pine.

Lodgepole pine/Huckleberry/Forb, CL-S4-13, occurs on the lower slopes and forested bottoms where there are areas of cold air accumulations and a seasonally high water table. Lodgepole pine is the major climax species

and white fir and Shasta red fir are minor climax tree species. Quaking aspen may be present in wetter areas. There will be white fir invasion on drier sites in the absence of fire.

Ponderosa pine/Bitterbrush/Fescue, CP-S2-11, occurs on well drained, low elevation, flat areas. The soils have developed through a combination of glacial outwash, volcanic cinders and normal soil development. Although this ecoclass is called a true pine type, it very closely resembles a mixed conifer type in many respects and, therefore, is an ecotone between the two ecoclasses. Depending on rock fragment content, there can be areas which are noncommercial, otherwise, this is a moderately productive site. Natural regeneration in combination with silvicultural practices favoring intolerant species should keep ponderosa pine as the major climax species with scattered Douglas-fir and incense cedar.

White fir/Chinquapin-boxwood-prince's pine, CW-H1-12, occurs on the steepest and highest slopes within the project area and corresponds to the area designated as spotted owl habitat. White fir, ponderosa pine and Douglas-fir are all major climax species and grow well. White fir and Douglas-fir are the strongest competitiors while some management opportunities exist for culturing ponderosa pine on drier mid-slope areas. Thinning of natural thickets will maximize growth. White fir is agressive in terms of occupying sites with vast numbers of progeny. Since this ecoclass occurs on steep, rocky ground, revegetation may be a severe problem if there is more than minimal ground disturbance.

In addition to the forested ecoclasses described, there is a significant portion (1681 acres, 17%) of the project area which is nonforested due to

soils and vegetation which are classed as wetlands according to definitions and classifications issued by the U.S. Fish and Wildlife Service (Cowardin, et. al., 1979). Refer to Appendix J-4 for locations of wetlands.

7. Land Status

There are numerous private land inholdings and areas of National Forest land which have Special Use Permits in effect. Refer to Appendix J-5 for locations of private land ownership. Of primary interest are lands owned by Weyerhaeuser Real Estate Company (WRECO). Some of these lands are located in areas currently or potentially important as eagle nesting or foraging areas, and they have previously been identified as available for some type of exchange negotiations between the Forest Service and WRECO.

There are several areas under Special Use Permits for various uses including powerlines and water diversions in addition to withdrawals from mineral entry and for reclamation. Most of these special uses or withdrawals have little or no adverse effect on the area's present suitability for use by eagles. The Rocky Point Resort and adjacent summer homes are the only major developments within the project on National Forest land. The communities of Odessa and Rocky Point are also located in the area along Upper Klamath Lake. Some of the outlying areas of Rocky Point are presently undergoing subdivision with development of housing planned or started.

A Memorandum of Understanding is currently being drafted between the Forest Service, Fish and Wildlife Service and the Oregon Department of Fish and Wildlife for the cooperative management of certain lands adjacent to Upper Klamath Lake. This agreement will also transfer management of those

National Forest wetlands adjacent to the lake to the Fish and Wildlife Service to be treated as a part of the Upper Klamath National Wildlife Refuge. No O&C lands are located within the project area.

8. Transportation

The project area is presently well roaded with Transportation System roads which provide extensive access except to some of the steepest areas. Approximately 2-3/4 miles of new System Roads are presently proposed to complete the permanent transportation system within the area. In addition, short term project roads (temporary spurs) will be needed whenever logging entries are made into specific timber stands. These short term roads will be obliterated at the end of individual projects. Several roads or portions of roads presently have a restricted hauling and construction season of January 1 through July 31 to reduce disturbing activity in the areas of known eagle nests. State Highway 140 and the West Side Road provide arterial access to the project area. Road management worksheets will be completed and appended to the EA for individual roads, especially secondary and short term roads, as they become involved in specific projects.

9. Recreation

The proximity of the project area to both a large lake (Upper Klamath Lake) and two mountain recreation areas (Mountain Lakes Wilderness Area and Sky Lakes Willderness Study Area) make the project area very popular with outdoor recreationists during all seasons of the year. There is one marked snowmobile trail which runs the length of the north half of the planning area. This is a portion of the Diamond Lake Snowmobile Trail which presently runs from Hyatt Lake to Diamond Lake, a distance of approximately

150 miles. Road 3637 provides access to the Mountain Lakes Wilderness Area via the Varney Creek Trailhead. Tomahawk Ski Bowl is located just south of Rocky Point along Highway 140. This facility, under Special Use Permit by the Forest Service, has operated only sporadically since its construction. It has operated only 14 out of the last 24 winter seasons due to lack of snow.

The Rocky Point Resort and Recreation Creek summer home areas are high activity areas throughout the summer months and have a moderate amount of activity the remainder of the year. There is a small developed campground and boat launching ramp at Odessa Creek and developed boat launching ramps at Malone Springs and Recreation Creek near Rocky Point Resort. Refer to the RIM Handbook (FSH 2309.11) and RIM output documents for definitions and details of use levels for these facilities. The camping pressure at Odessa Creek is light while boat launching activities are heavy at Malone Springs and Recreation Creek, especially during the summer fishing and fall waterfowl hunting seasons. The parking lot and launching facility at Pelican Cut is heavily used during the fall waterfowl hunting season, but lightly used the remainder of the year. A highway rest stop and picnic area along the West Side Road near Crystal Springs receives moderate use during the spring and summer months. In addition, a nature trail originates from the Crystal Springs Rest Area and goes out to an overlook at the edge of the Klamath Lake marsh. There is a canoe trail through parts of the Klamath Lake marsh which was signed in 1980. It is anticipated that the trail will receive light use during the spring and summer months. This trail has been nominated for inclusion in the National Recreation Trail system.

The Winema Land Use Plan has allocated acreage on Pelican Butte for possible development of winter sports facilities. The Final Environmental

Statement for the McLoughlin-Klamath Planning Unit states that any development in the area must be compatible with adjacent resource values. Refer to Appendix F.

10. Visual Resources

The majority of the project area is Foreground Retention or Foreground Partial Retention. There are some areas of Middleground Partial Retention west of Crystal Springs on the steep areas, on the east flank of Pelican Butte and in the Odessa Creek area. All of the Middleground areas are on the borders of the project area well away from Highway 140 and the West Side Road. Refer to the TRI Visuals subsystem for exact location and classification; Appendix J-6 for locations of visual areas in respect to the project and to the Winema Timber Implementation Plan for specific situation descriptions and management directions.

11. Cultural Resources

The same factors which make the project area so rich and varied for wildlife and recreation, i.e., a diverse forest adjacent to an equally diverse wetland and natural lake, also make this a very rich area for cultural resources, both historic and prehistoric. The area immediately bordering the lake has several sites of prehistoric Indian hunting camps. This area also had some of the earliest logging activities in south central Oregon. There are abandoned railroad logging grades, logging camps and log chutes where logs were gathered together and rafted across Upper Klamath Lake to Klamath Falls sawmills. The Rocky Point area has a long history as a resort area and as a hunting and fishing area.

12. Soils

Most of the project area has soils which are in the R type. These are well drained, gravelly soils derived from a mixture of volcanic ash, weathered andesites and basalts. Fertility is moderate to high with rooting depths of 20 to 40 inches being common. Gravel, cobble and stone make up 10 to 75 percent of the soil material with soil depth generally greater than 60 inches. Compaction, displacement, planting success and ease of ripping can all vary from low to high depending on coarse fragment content. Soils with more than 60 percent coarse fragments will be difficult to plant and obtain satisfactory survival. Soils with less than 50 percent coarse fragments are susceptible to compaction when at their critical moisture level. These soils have the highest productivity potential of any in the project area and the greatest potential for reduction in productivity if not managed properly. There are small areas (under 200 acres each) of soil types 1, 2, 8, 9, 10 and 17. Refer to the Winema Soil Resource Inventory for details concerning soil characteristics and management recommendations.

13. Preattack (Fire Management)

Several tractor loading and pumper chances are scattered throughout the project area. In addition, proposed spike camps are located near Odessa, near the Rocky Point Boat Launching Area and at the Crystal Springs Rest Area. Refer to the TRI Preattack subsystem for specific locations of Preattack facilities.

At the present time all fire suppression activities will follow Regional and Forest policy. Historically, most fire suppression activities have occurred during late summer or early fall after young eagles have fledged.

We see no conflict between suppression activities and use of the project area by eagles. Even prior to the idea of having an eagle habitat management area, all active and inactive eagle nests were located on the District Fire Dispatch Map in the fire control office so that those District personnel making fire suppression decisions would have ready access to nest locations. It was further agreed that any time wildfires occurred in an area near an eagle nest the District or Forest Wildlife Biologist would be involved in the decision-making process for suppression activities.

14. Other

Several genetically superior trees have been located throughout the project area. These trees are banded with orange paint at breast height and are signed with metal tags. Consult the genetic subsystem of TRI for locations of trees. Cone collection and other activities at various times throughout the year are associated with these trees.

Administrative improvements include the District's horse barn, powder house, and three buildings in the Pelican Guard Station complex.

There are open pit cinder quarries near Odessa, Tomahawk Ski Bowl and the Rock Creek Cinder Pit near Crystal Springs. Klamath County has a Special Use Permit for a garbage transfer station near Odessa.

EVALUATION CRITERIA

The following criteria were developed in order to evaluate the management alternatives for the project area and were used in the selection of the preferred alternative:

1. Be consistent with applicable laws, regulations and Executive Orders.

2. Protect existing or future critical nesting or foraging areas through a plan of acquisition of private inholdings or wildlife easements, and management of disturbing activities on National Forest lands or other lands with wildlife easements.

3. Provide for an expanding nesting population by meeting the following objectives:

   a. In target stands, develop and maintain an average of 10 potential nest trees per acre over 50% of each contiguous 40 acre tract throughout the project area. Refer to the habitat objectives listed in the Introduction to the EA.

   b. Maintain 20 - 40% overstory crown closure in target stands with at least two additional understory layers.

4. Provide for a stable nesting population by meeting the following objectives:

   a. Around each existing nest tree, provide an uneven-aged, multi-storied stand old enough to provide replacement nest or perch trees if existing trees within the home range are lost.

   b. Produce suitable nesting habitat for the location of alternate nests within existing eagle home ranges in the project area (includes a and b in Criteria 3). Bald eagles normally build and maintain from one to three nests in a pair's home range. A given pair may nest in the same nest year after year while maintaining unused alternate nests or

may nest in different nests in different years. It is not known precisely why alternate nests are constructed, however, since this is a definite part of most nesting pairs' life cycle, it is important to provide suitable habitat for alternate nests.

5. Minimize departure from the Timber Resource Plan, McLoughlin-Klamath Plan, and other approved Forest plans.

ALTERNATIVES CONSIDERED

The alternatives considered were developed through a review of the current literature concerning bald eagles and their management, and consultation with individuals from various backgrounds including Barbara Holder, Region 6 Non-Game Coordinator, (presently National Threatened and Endangered Species Coordinator); Jay Gore, Team Leader, Endangered Species Program, Boise Area Office, U.S. Fish and Wildlife Service; Frank Isaacs and Richard Frenzel, Oregon Cooperative Wildlife Research Unit; Raymond Frost, Klamath Ranger District Resource Assistant; and Al Horton, Klamath Ranger District Silviculturist.

1. Alternative A - No Timber Harvest

No timber harvest, road construction or silvicultural activities would take place within the project area. Timber stands would develop and perpetuate themselves under natural conditions except that wildfires would be suppressed. Access to undeveloped areas would be closed or seasonally restricted.

2. Alternative B - Current Management Direction

Present management direction and policy would be followed with no change from the present policy on eagle habitat management. Refer to the Winema

Special Wildlife Habitat Management Situations in Appendix I.

3. Alternative C - Even-Aged/Uneven-Aged Management of Timber Stands

This alternative provides a combination of silvicultural options for stand management utilized in conjunction with considerations such as ecoclass, proximity to existing eagle nesting or foraging areas, recreation areas, and visual resource management guidelines.

4. Alternative D - Even-Aged Management of Timber Stands

This alternative provides for the use of silvicultural prescriptions which would result in even-aged stands of varying ages meeting minimum stand objectives at maturity.

5. Alternative E - Uneven-Aged Management of Timber Stands

This alternative provides for the use of silvicultural prescriptions which would establish and perpetuate uneven-aged stands meeting minimum stand objectives.

EFFECTS OF IMPLEMENTATION

1. Alternative A - No Timber Harvest

In this alternative, no future silvicultural activities would take place within the project area including timber harvest. Dispersed recreation use levels would be reduced and landownership patterns would remain the same. No new timber sale roads would be constructed and existing tertiary roads would be examined for permanent closure. From the standpoint of eagle

habitat management, the most important aspect of this alternative would be the continued exclusion of wildfire. This would result in a dense stand of tolerant species in the forested plant communities where soil moisture capacities are adequate for white fir growth through the summer months. As these stands assume typical characteristics of mixed conifer old growth for this part of Oregon, some trees suitable for nesting may develop from other species.

If the landownership patterns remain the same, it is anticipated there will be some subdivision with resulting housing construction which will have an adverse impact on present and future nesting, foraging and wintering activities. Loss of potential timber harvest volume will amount to a long term average of about 90 cubic feet per acre per year from full yield and 70 cubic feet from present modified yield. This presents a 100% fall down in harvest volume from full yield and present modified yield. Plants and wildlife species which utilize undisturbed old growth forest stands will increase in numbers while species which require earlier successional stands will decrease. Refer to Thomas (1979) for details of wildlife species inhabiting these types of habitats and their response to habitat changes.

Any winter sports activities planned for the area on Pelican Butte allocated for that purpose will follow the management requirements and constraints outlined in the Final Environmental Statement of the McLoughlin-Klamath Planning Unit. This will apply to all alternatives considered in this EA. Refer to Appendix F.

2. Alternative B - Current Management Direction

Refer to the Klamath Basin Working Circle Timber Resource Plan and the McLoughling-Klamath Unit Plan for a detailed description of the resource

objectives affecting the planning area. Under this alternative, existing management direction for all resources would be followed as outlined in the documents listed above. Timber harvest and other silvicultural practices, visual resource management guidelines, recreation levels and landownership patterns would remain unchanged. Management direction for wildlife would remain the same for all species including identified sensitive and threatened species. Refer to Appendix I for details concerning management of these species. Existing bald eagle nests would be protected with a 10 chain buffer area and a restricted operating season for logging and road construction activities within 1/4 mile of active nests from February 1 through July 31. Habitat for future eagle nest trees would occur within the 10 chain area (30 acres) around existing nests or in the area east of the West Side Road presently designated as wildlife area. Throughout the remainder of the project area, overstory trees which would meet criteria for possible eagle nest trees would be removed as a result of normal silvicultural practices, except overstory trees with diameters averaging 28 inches would be retained in 20% of the VRM Foreground Retention areas along Highway 140 and the West Side Road. Refer to Appendix J-6 for locations of VRM Foreground Retention areas. Loss of potential timber harvest volume would amount to a long term average of 21 cubic feet per acre per year. This represents an overall 20% fall down in harvest volume from full yield and no increased fall down from the present modified yields within the project area.

3. Alternative C - Even-Aged/Uneven-Aged Management of Timber Stands

Under this alternative, the primary management objective of the forested communities would be to create and maintain habitat suitable for nesting

and roosting by bald eagles in order to sustain or increase the number of eagles presently using the project area. Certain specific criteria have been developed which, based on current knowledge of the habitat requirements for nesting and wintering eagles, will meet the primary objective of this alternative. Refer to the Introduction of the EA for these criteria (timber stand objectives). An area approximately 1/4 mile in diameter around each existing eagle nest will be managed as an uneven-aged stand for as long as that nest exists or until the stand no longer meets basic stand objectives after the nest is gone. Areas which are not within 1/4 mile of an existing nest and do not meet stand objectives will be managed using even-aged silvicultural methods to develop the stand characteristics established in the Introduction. The area above Crystal Springs which is presently designated as a spotted owl habitat management area will be changed from its present management scheme of rotational timber harvest every 300 years so that a 300 acre continuous tract is always in old growth, to either a modified harvest area or a no harvest area depending on logging systems available for use on the steep ground involved and Regional spotted owl management direction. Of the 900 acres presently in spotted owl habitat, 600 acres will be retained as spotted owl/eagle habitat within the project area and 300 acres will be returned to the standard commercial forest land base.

This alternative also includes proposed acquisition of several tracts of land either by exchange or purchase or the negotiation of wildlife easements on these lands. These lands have been identified for acquisition or easement negotiation on a priority basis: High priority parcels include only Weyerhaeuser lands to be exchanged for other National Forest lands iden-

tified for exchange through the Forest Land Adjustment Plan. All of these lands are critical for use by eagles because of their position in or near present home ranges or the future disruption of nesting habitat if these lands are intensively managed silviculturally or subdivided for housing.

Medium priority lands for acquisition or easement are those tracts which could pose a threat to existing or potential nesting or foraging areas if these tracts are subdivided for housing or otherwise used intensively for activities other than agriculture or timber. Low priority lands for acquisition or easement are those tracts which would be acquired through purchase, exchange or easement only if they became available by the owner in order to help eliminate private inholdings and potential disturbing activities within the eagle habitat management area. Only the Weyerhaeuser lands identified for high priority acquisition will be actively pursued at this time. Tracts in the medium and low priority categories would be analyzed in the Forest Land Adjustment Plan. Refer to Appendix J-5 for locations and priorities of lands proposed for possible acquisition or easement.

Loss of potential timber harvest volume would amount to a long term average of about 33 cubic feet per acre per year. This represents a 37% fall down in harvest volume from full yield and a 17% fall down in harvest volume from present modified yields within the project area. Refer to Appendices D and I for yield tables and calculations of fall downs of harvest volumes under various harvest regimes. VRM Foreground Retention objectives will be met except that the visual corridor will be impacted through more frequent entries to meet project stand objectives.

4. Alternative D - Even-Aged Management of Timber Stands

Under this alternative, only silvicultural prescriptions resulting in even-aged stands would be utilized. Regeneration methods such as clearcuts and shelterwoods or intermediate treatments such as final overwood removals and thinnings would be utilized throughout the project area, including that portion presently designated as spotted owl habitat. The spotted owl habitat will be lost in order to meet eagle habitat stand objectives. The present uneven-aged management scheme around existing eagle nests would be retained (Refer to Appendix I). The basic nest tree objectives as outlined in the Introduction to the EA would be achieved in stands adjacent to nests including the area between the West Side Road and Upper Klamath Lake. A multi-storied understory will probably not develop since even-aged harvest methods would be employed. Tracts of land identified for acquisition or easement and their acquisition priority would be the same as in Alternative C. Recreation levels would remain at current levels.

Loss of potential timber harvest volume would amount to a long term average of about 33 cubic feet per acre per year. This is the same fall down rate as Alterntive C. VRM Foreground Retention objectives would be impacted the same as Alternative C.

5. Alternative E - Uneven-Aged Management of Timber Stands

The basic approach to managing the various resources in the project area under this alternative would be the same as Alternatives C and D except that only silvicultural methods used for the establishment and perpetuation of uneven-aged stands would be utilized. The 10 chain buffer area around existing eagle nests would be deleted although the 1/4 mile restricted

operating season that would remain. The area designated as spotted owl habitat will be changed from its present management scheme of rotational timber harvest every 300 years so that a 300 acre continuous tract is always in old growth, to either a modified harvest area or a no harvest area depending on logging systems available for use on steep ground and Regional spotted owl management direction. Of the 900 acres presently in spotted owl habitat, 600 acres will be retained as spotted owl/eagle habitat within the project area and 300 acres will be returned to the standard commercial forest land base.

Under this alternative, land acquisition, visual resource mangement, potential timber harvest volume and recreation levels would be the same as Alternatives C and D.

EVALUATION OF ALTERNATIVES

1. Criteria 1 - Laws and Regulations

The alternatives selected for analysis were developed to meet all applicable laws, regulations and Executive Orders.

2. Criteria 2 - Land Acquisition and Access Management

a. Alternative A - No Timber Harvest

Under this alternative, landownership patterns would remain unchanged. Future intensive development of some of the private inholdings would be detrimental to use of the project area by bald eagles.

There would be no new construction of permanent System Roads and most tertiary (project and spur) roads would be closed or obliterated.

There would be seasonal use restrictions on some roads within 1/4 mile of active nests as needed.

b. Alternative B - Present Management Direction

Same as Alternative A except some new System Roads would be constructed as needed. New construction would have to minimize or avoid long-term disturbance to bald eagles.

c. Alternative C - Even-Aged/Uneven-Aged Management

Private inholdings within the project area have been identified for acquisition through exchange, purchase or easement on a high, medium or low priority basis. An active program of acquisition or exchange for high priority lands would be pursued. Medium or low priority lands would be acquired as identified in the Land Adjustment Plan.

d. Alternative D - Uneven-Aged Management

Same as Alternative C. There would be no new construction of permanent System Roads and most tertiary (project and spur) roads would be closed or obliterated. There would be seasonal use restrictions on all roads within 1/4 mile of active nests. These restrictions could be for commercial traffic and maintenance or for all vehiclar traffic as needed. Closures and restrictions could be through the use of signs, gates, closures of road entrances with logs or berms, obliteration of the road entrance or obliteration of the road for its entire length. The objective of the access management program would be to reduce or eliminate disturbing activities to nesting, roosting or foraging eagles on a case-by-case basis.

e. Alternative E - Even-Aged Management

Same as Alternatives C and D.

3. Criteria 3 - Provide for An Expanding Nesting Population

a. Alternative A - No Timber Harvest

Under this alternative, no future timber management would take place in the project area although wildfires would be suppressed. It is expected that most stands would become continuous, dense stands of white fir with low suitability for eagle nesting. There is one ecotype in the project area which probably would develop suitable nesting habitat under a no timber harvest management regime: Ponderosa Pine/Bitterbrush/Fescue type, CP-S2-11 which represents 4% of the total area.

b. Alternative B - Present Management Direction

Present management direction provides for even-aged management with a 120 year harvest rotation except in areas designated as either Foreground Retention where the harvest rotation is 240 years; spotted owl habitat where the harvest rotation is 300 years; and the present West Side Road wildlife area where there is no programmed harvest. Under each of these management schemes, trees suitable for eagle nesting do not develop under a planned program of management. No new suitable nesting habitat outside of the 30 acre buffer area around existing eagle nests is expected to develop under this alternative. The area between the West Side Road and Upper Klamath Lake, which is presently designated as eagle habitat, is expected to lose most of its mature

ponderosa pine overstory through natural mortality with very little replacement due to competition with the white fir understory.

c. Alternative C - Even-Aged/Uneven-Aged Management

Silvicultural prescriptions for each ecotype would be designed to meet the objectives for target stands stated in the Introduction to the EA. Prescriptions would be based on the present stand condition in relation to target stand objectives, soils, topography, ecotype and proximity to existing home ranges and nests.

Due to steep topography, the area presently designated as spotted owl habitat would remain unharvested unless logging systems can be utilized which can overcome the reforestation problems mentioned in the soils description of the EA and still meet target stand objectives. If this area is not harvested, some precommercial thinning would be accomplished to encourage the growth of Douglas-fir. A minimum of 300 acres of suitable old growth spotted owl habitat would be maintained and at the same time meet eagle habitat stand objectives. Eagles and spotted owls are presently utilizing the same habitat and we believe this situation can be perpetuated under the proposed management regime. In this case, Douglas-fir would be the primary potential eagle nest tree being managed. That portion of the spotted owl habitat outside the planning area would be redesignated as standard commercial forest land.

d. Alternative D - Even-Aged Management

Silvicultural prescriptions for each ecotype would be designed to meet the objectives of this alternative. Regeneration methods uti-

lized would include clearcutting and shelterwood harvest with intermediate thinning. If the spotted owl habitat is managed to meet target stand objectives, the habitat will become unsuitable for spotted owls and the existing pair will be lost. The loss of this spotted owl habitat would be contrary to the present Regional policy.

e. Alterantive E - Uneven-Aged Management

Under this alternative, silvicultural methods would be utilized to create a continuous uneven-aged stand throughout the project area. Most of the target stand objectives could be met or exceeded except that the primary overstory species developed would be white fir. With this management regime, tolerant species, such as white fir, would be favored over intolerant species, such as ponderosa pine, leading to mostly white fir in both the understory and overstory. The spotted owl habitat could be retained under this alternative if tree harvest is delayed until individual trees are a minimum of 300 years of age.

4. Criteria 4 - Provide for Stability Within the Present Nesting Eagle Population

a. Alternative A - No Timber Harvest

With no silvicultural activity and no wildfires, stands would tend toward dense, continuous stands of white fir unsuitable for nesting eagles. As existing nest and perch trees are lost to wind, disease, insects, etc., there would be fewer and fewer replacement trees leading to a decline in the present nesting population of eagles.

b. Alternative B - Present Management Direction

The present concept of a 10 chain buffer area around each known nest is adequate to protect the present nesting population. Within the buffer area, selection method silviculture is presently permitted to maintain multi-storied stands of mixed conifers to provide replacement nest and perch trees. It is questionable whether this 30 acre area is adequate for the long term replacement of lost nest trees, especially considering that, eventually, all surrounding stands will be less than 120 years of age with no replacement nest trees or perch trees. Present or future use of the project area for winter roost sites is not considered except in the area presently designated for wildlife use along the West Side Road. The area designated as spotted owl habitat also provides an area presently suitable for winter roosting. Habitat suitable for winter roosting would be provided throughout the project area under all other alternatives considered in this EA.

c. Alternative C - Even-Aged/Uneven-Aged Management

This alternative would provide, at a minimum, a 1/4 mile buffer area of an uneven-aged stand with at least 10 trees per acre suitable for nesting and/or perching around each existing eagle nest. Uneven-aged silviculture methods would be utilized in all other stands which had either an overstory which met target stand objectives or had an understory which could be managed toward meeting stand objectives for the overstory. In stands which did not meet overstory stand objectives or have manageable understories, even-aged silviculture methods

would be utilized where slope, aspect, soils and ecotype permitted. Potential nest tree and crown closure objectives listed in Criteria 3 would be met. There would be suitable nest and perch tree replacements available within the existing nest tree buffer area and in most adjacent stands.

d. Alternative D - Even-Aged Management

The objectives listed under Criteria 3 would be met throughout the planning area while the existing 10 chain buffer area around existing nests would be expanded to 20 chains (125 acres). Stands will be allowed to perpetuate themselves as outlined in the yield table included in the Preferred Alternative section of the EA until the overstory is lost at which time the stand will be regenerated utilizing even-aged silviculture methods. The type of entry will be dictated by the manageability of the understory. There will be suitable replacement nest and perch trees in the stand around the nest tree and in most adjacent stands. If this management scheme is used in the spotted owl area, this habitat will become unsuitable for spotted owls.

e. Alternative E - Uneven-Aged Management

Selection tree harvest methods would be utilized throughout the project area to create and maintain a multi-layered stand of mixed conifers. In the absence of severe site disturbance, the perpetuation of preferred nest tree species will be difficult since less desirable tolerant species will be favored. A stable population of eagles using the project area may be maintained if the birds will utilize less preferred tree species.

5. Criteria 5 - Minimize Departure From Approved Forest Plans

a. Alternative A - No Timber Harvest

Of the alternatives considered, this represents the maximum departure from current Forest plans. No timber harvest would be permitted and recreation would be very limited or eliminated outside of developed areas. There would be no compliance with Forest plans concerning utilization of resources within the planning area although there would be maximum compliance where protection of the envirionment is required.

b. Alternative B - Present Management Direction

All Forest management plans would be followed as they are now written.

c. Alternative C - Even-Aged/Uneven-Aged Management

This alternative represents a moderate departure from existing Forest plans. The buffer area around existing nests would be increased from 10 chains to an average of 20 chains. The 300 year rotation harvest in 2/3 (600 acres) of the spotted owl habitat would be dropped while the remaining 1/3 (300 acres) would be returned to standard commercial forest land with a 120 year rotation. Sufficient old growth would be retained to support a minimum of one pair of spotted owls and meet target stand objectives at the same time. Silvicultural methods which would employ timber harvest methods would begin in the present eagle habitat management area between the West Side Road and Upper Klamath Lake. Recreational and Visual Resource Management

Guidelines would be met although there would be seasonal use restrictions for some types of recreation depending on need. There would be an extended rotation and reduced harvest volume in stands throughout the project area with resulting yields of 63% of full yield or approximately 17% below the average current yield. All other resource management objectives would be met or exceeded including wildlife habitat diversity, streamside management, snag management, wetlands and flood plains and threatened and endangered plants and animals management. Land acquisition would follow the Land Adjustment Plan except for the acquisition of high priority lands.

d. Alternative D - Even-Aged Management

This alternative closely resembles Alternative C when considering only Criteria 5. Harvest volumes and resources management objectives would be similar except that the spotted owl habitat would be lost.

e. Alternative E - Uneven-Aged Management

This alternative represents a significant departure from approved Forest plans, especially in the type of silvicultural methods used. Harvest volume would be about the same as Alternative C, however, entries would need to be more frequent leading to a much less cost effective silvicultural program than any of the other alternatives and the tree species composition would lean heavily toward tolerant species such as white fir. All other resource and environmental objectives would be affected the same as in Alternative C.

	A NO TIMBER HARVEST	B PRESENT MGMT DIRECTION	C EVEN/UNEVEN MGMT	D EVEN-AGED MGMT	E UNEVEN-AGED MGMT
Road Construction and Maintenance	No new construction. Closure of most tertiary roads. Seasonal closure of some others.	Limited new construction. Seasonal closure within 1/4 mile of active nests.	Closure of most tertiary roads. Seasonal closure on others within 1/4 mile of active nests, monitoring of activities	Same as C	Same as C & D
Recreation Levels	Significantly reduce.	Present levels maintained, new activities evaluated for impact on T&E species.	Present levels maintained and evaluated for impact on T&E species.	Same as C	Same as C & D
Departure from Approved Forest Plans	Significant, no management or timber harvest, reduced recreation	None	Moderate - 17% further fall down in harvest volume, extended rotation	Same as C	Moderate - 17% further fall down in harvest volume, change to uneven-aged silviculture, extended rotation
Meet Target Stand Objectives	Possible problems with tolerant species competition.	No	Yes	Same as C, except no multi-story development	Same as A
Maintain Spotted Owl Habitat	Yes - will increase significantly	Yes - will be retained	Yes	No - will be lost	Yes - may increase habitat in some areas
Meet Visual Resource Guidelines	Meet and exceed	Yes	Yes - FRT will be impacted more often	Same as C	Same as C & D
Wildfires	Will be suppressed	Same as A	Same as A	Same as A	Same as A
Restricted Operating Season Around Nests	None needed	Yes	Yes	Yes	Yes
10 Chain Buffer Around Nests	None needed	Yes, 30 acres	No - 20 chains, 125 acres	No - 20 chains, 125 acres	None needed
Land Acquisition	None	None, except as presently stated in the Land Adjustment Plan	Yes - acquisition and easement	Same as C	Same as C

SUMMARY OF ALTERNATIVES

THE PREFERRED ALTERNATIVE

Of the five management alternatives which were considered, the preferred alternative for long-term bald eagle management on the Klamath Ranger District is Alternative C which is a combination of silvicultural methods involving even-aged management and uneven-aged management of timber stands to develop and maintain habitat for nesting, roosting and foraging eagles. Also included in the alternative is a plan for acquiring private inholdings on a priority basis through acquisition and exchange or protection of habitat through easements to prevent degradation to present and potential nesting and foraging habitat through intensive use of these lands. This alternative best meets the conditions established by the Evaluation Criteria while meeting all of the habitat objectives established in the Introduction and at the same time best meets the needs of other resources within the project area with the least effect on the environment and human resources.

Under the Preferred Alternative, silvicultural methods utilized would be based on a timber stand's potential for meeting target stand objectives, proximity to existing eagle nests, ecotype, soils, etc. The yield table included in this section will be used as a guide for what type of silvicultural entry will be made and the scheduling of entries. Stands with overstories which meet or exceed target objectives or have a manageable understory with a ponderosa pine crop tree component will receive uneven-aged management. Stands in which a suitable overstory is lacking and which have an understory that cannot easily be managed to meet stand objectives will receive even-aged treatments. Harvest volume yields will be about 36% below standard yield or 17% below average present yield for the project area. Harvest volumes and fall down have been calculated utilizing data from the Timber Management Plan. Refer to Appendix D for

an economic analysis of this alternative. The calculated fall down for this project may be greater than the actual fall down for two reasons: Actual growth may be greater than calculated in the TM plan and the Yield Table used in the EA assumes that none of the overstory trees meeting nest tree objectives will ever be harvested. If some of these trees are harvested either because there are more than 15 trees per acre in the overstory or through captured mortality, then harvest volume could be increased significantly. These trees will only be harvested if there are enough snags to provide eagle perch trees and meet the Winema Snag Management Policy.

This alternative provides for most of the wetlands in the project area to be managed as a part of the Upper Klamath National Wildlife Refuge as outlined in a proposed Memoradum of Understanding between the Forest Service, Fish and Wildlife Service and the Oregon Department of Fish and Wildlife. This memorandum is not expected to have any unfavorable impact on the intent of this EA to protect existing or potential eagle foraging areas.

This alternative also provides for the protection of the existing pair of spotted owls inhabiting the project area. Habitat for additional pairs of owls may be provided in areas with uneven-aged management regimes depending on the location, size and intensity of harvest in these areas.

Development planned for winter sports activities in the area on Pelican Butte allocated for that purpose must deal with any impacts on bald eagles in the Environmental Impact Statement for those planned developments including a formal consultation with the U.S. Fish and Wildlife Service as specified in the Endangered Species Act of 1973, as amended 1978-79.

The present access management program will be continued and expanded to reduce or eliminate disturbing activities through road use restrictions, seasonal

closures or obliteration after project use. Five road use categories have been developed:

1. Open all year with no restrictions:

   Road #3637 3639

   State Highway 140 3639-030

   West Side Road 3639-034

   3455

   3400-350

   3419 and any road which connects to it.

2. Seasonal restrictions for commercial traffic and maintenance:

   3637-050 and any road which connects to it.

   3456 - lower 2/3's

   3425

   3400-230

3. Seasonal closure to all vehicle traffic:

   3456 - upper 1/3

4. Roads to be monitored for traffic levels and effects on eagles:

   3459 - Malone Springs Road, presently only a commercial use restricted season.

5. Roads to be permanently closed or obliterated:

   Most tertiary roads. Generally, a tertiary road will have the same use restrictions as the higher class road with which it connects and will eventually be closed after project use.

Road use restrictions and closures will be changed on an "as needed" basis. Seasonal restrictions and closures are January 1 through July 31. The roads listed above are those longer than 1/2 mile. There are numerous short roads which connect Highway 140 and the West Side Road which often provide access to private property or a Forest Service public use facility which have no use restrictions.

Site specific issues, concerns and opportunities will be dealt with through an EA for the individual project. The content of this EA will automatically be covered in those projects by reference. Individual activities not specifically covered by this EA will be referred to the Fish and Wildlife Service through an informal consultation unless a formal consultation is requested by either agency.

The Oregon Department of Fish and Wildlife will be informed of all activities within the Eagle Habitat Management Area which affect bald eageles. Any eagle nest, roosting area or foraging area which may be discovered outside the boundaries of this project will undergo a separate formal consultation with the Fish and Wildlife Service. The boundaries of the project area may be modified to incorporate new areas as needed. Present winter roost areas have not yet been clearly defined and no specific management objectives have been established for their management. As these areas are pinpointed, specific management objectives will be developed according to current available information.

Prescribed burning techniques may be employed when it is mutually agreed between the District Silviculturist and a wildlife biologist that burning will help achieve target stand objectives. Burning activities will be completed in a time and manner which will not adversely affect bald eagles using the management

area. Prescriptions will be written by a qualified Fuels Technician with input from a silviculturist and wildlife biologist. All burning activities will be monitored for their effects on eagles and their habitat in the project area.

A requirement of this alternative is that a program of monitoring and research will be developed so that a clear and concise record can be kept concerning the reactions, both positive and negative, of eagles to all activities in the project area. Monitoring and research will be coordinated with Oregon State University and the Oregon Department of Fish and Wildlife to ensure that the greatest amount of manpower and expertise is available for such a program.

KLAMATH RANGER DISTRICT - MIXED CONIFER

Eagle Management Area - Extended Rotation

Stands which do not meet the established eagle nest tree criteria will be regenerated at age 240 to establish a new stand of the preferred intolerant species (PP, DF, or SP). In 15 to 20 years stocking level control will be initiated through precommercial thinning. At age 40, when trees reach 3 to 9 inches DBH, the first commerial thinning entry will be made. Four more commercial thinning entries will occur at 20 year intervals to maintain proper stocking levels and growth rates.

At age 160, a shelterwood regeneration cut will occur leaving 15 shelter trees considered to be the best candidates for future nest trees. An understory of predominantly tolerant species will be established within 5 years.

The understory will be precommercially and commercially thinned to maintain stocking level control until age 80. At this time the overstory at age 240 will meet nest tree size criteria. The stand will then be managed under an uneven-aged regime aimed at maintaining a large, 28"+, scattered overstory and a thrifty multi-storied understory. Mortality in excess of wildlife needs would be harvested. When the overstory is lost through mortality the stand will be regen-erated and again managed under the even-aged regime.

All timber management activities will occur outside the restricted operating season previously defined as a critical habitat requirement.

AVERAGE CUBIC FEET/ACRE/YEAR OUTPUT

Current Situation:

		Cubic Feet	% of Mgmt Area
Standard Component	=	90.9	45.4
Visual - Partial Retention	=	80.3	12.2
Visual - Retention & Old Growth	=	50.3	37.6
Westside Wildlife Area	=	00.0	4.8
Current Area Weighted Average	=	70.0 Cu. Ft.	
Proposed Area Managed Yield	=	58.0 Cu. Ft.	

Comparison of Outputs:

Alternative	Yield (Ft. 3/Yr)	% of Full Yield	Change From Full Yield	Change From Current Direction
Full Yield - STD.	90.9	100%	+/- 0 (0%)	+ 20.2 Cu. Ft. (+30%)
Current Situation	70.0	77%	-20.2 ft (-23%)	+ 0 Cu. Ft. (0%)
Eagle Mgmt	58.0	64%	-32.9 ft (-36%)	- 12.0 Cu. Ft. (-17%)
No Yield	0.0	0%	-90.9 ft (-100%)	- 70.0 Cu. Ft.(-100%)

Note: Yields calculated for comparison only based on Timber Resource Plan assumptions and area weighted averages. Yields from existing nest buffer areas considered the same as surrounding area in all alternatives.

KLAMATH RANGER DISTRICT - MIXED CONIFER

Eagle Management Area - Extended Rotation

Age	Height	DBH	Trees Per Acres				Merch. Vol (Cu Ft.)	Silvicultural Treatment
			Total	Cut	Leave	Mort.		
15	13	2.0	999	689	310	10	0.0	SPC
40	42	8.5	300	95	205	3	642.5	HTH
60	78	11.2	202	57	145	1	1130.0	HTH
80	89	14.4	144	45	99	1	1694.6	HTH
100	99	17.3	98	30	68	1	1744.8	HTH
120	105	19.6	67	17	50	0	1304.3	HTH
140	110	21.5	50	0	50	1	0.0	NTM
160	114	23.0	49	34	15	0	3760.4	HSH
0	0	0	0	0	0	0	0.0	REF
180	117	24.4	15	0	15	1	0.0	NTM
15	13	2.0	999	689	310	10	0.0	SPC
				Mort				
200	120	25.7	14	1	14	0	134.1	HSV
40	42	8.5	300	95	205	3	642.5	HTH
220	122	26.9	14	0	14	1	0.0	NTM
60	78	11.2	202	57	145	1	1130.0	HTH
				Mort				
240	124	28.1	13	1	13	0	167.4	HSV
80	89	14.4	144	45	99	1	1694.6	HTH

13911.1

$\frac{13,911.1}{240 \text{ yrs}}$ = 57.96 Ft.3/year

$\frac{57.96}{90.91}$ = 63.75% = 64% Full Yield

ACREAGE BREAKDWON BY MANAGEMENT CLASSIFICATION

Total Acres in the Project Area - 10,867

Visual Resource Management	Acres	% of Project Area
Foreground Retention	4,025	37
Foreground Partial Retention	1,053	10
Middleground	5,771	53
Rocky Quarrys	18	>1
Ecotypes		
CW-C2-15 Mixed Conifer	5,667	52
CR-S3-11 Shasta Red Fir - White Fir (CR-53-11 & CR-53-13)	681	6
CW-H1-12 White Fir (CW-53-11)	1,867	17
CL-S4-13 Lodgepole Pine	344	3
CP-S2-11 Ponderosa Pine	400	4
Wetlands/Pasture	1,845	17
Other Uses	63	1
Timber Stands Which Presently Meet Project Objectives	4,690	43
Timber Stands Which Do Not Meet Project Objectives	3,919	36
Wetlands/Pasture	1,874	17
Other Uses	69	1
Lodgepole	315	3
Commercial Forest Land	8,609	79
Special Component	4,252	39
Marginal (slope)	562	5
Standard	3,795	35

CONSULTATION WITH OTHERS

The project which has been evaluated was first proposed in February 1980. At that time the consultation process, as required under the Endangered Species Act, started with the U.S. Fish and Wildlife Service. A meeting and field trip to the Rocky Point Timber Sale were held on February 21 and 22. Attending the meeting and field trip were members of the Bald Eagle Working Team, Jack Inman, Bob McQuown, Ray Frost and John Goold from the Winema National Forest.

On September 18, 1980, a memo was sent to various individuals on the Winema National Forest concerning issues, concerns and opportunties associated with this project. (Refer to a copy of the memo in Appendix G.) Written responses were received from Bob Yoder and LeeRoy Salsberry. The following individuals were in attendance at the October 6 District meeting: Bob McQuown, Ray Frost, Priscilla Summers, Jack Inman and John Goold. Two issues were discussed at that meeting: Recreation levels in the Malone Springs area and how to deal with presently unknown eagle nests which might be found outside the project area in the future. It was decided that the recreation levels issue would have to be dealt with during the Consultation Process meeting to be held with the Regional Office and Fish and Wildlife in December. New nests outside the Habitat Management Area would need to be dealt with individually outside the scope of this EA and Consultation.

One newspaper article has appeared in the Klamath Falls Herald and News and an informal meeting and field trip was held with several residents of the Rocky Point Community primarily concerning snowmobiling activities within the project area. Attending the meeting in Rocky Point were Priscilla Summers, Dave Pederson and John Goold from the Forest Service and Art Eggelstein, Bill Coplen and Bill Cadman from the Rocky Point Community.

Draft copies of the Habitat Management Plan were sent to the following individuals for review in November 1980: Bob McQuown, Klamath District Ranger; Jack Inman, Winema Forest Biologist; Bob Chadwick, Winema National Forest Supervisor; Ralph Opp, Oregon Department of Fish and Wildlife; Barbara Holder, Non-Game Coordinator, Forest Service Region 6; Hal Salwasser, Regional Wildlife Ecologist, Forest Service Region 5; and Jay Gore from the Endangered Species Program of the U.S. Fish and Wildlife Service, Boise Area Office. In December 1980, Bob Anthony of Oregon State University was also requested to review the project.

On December 16, 1980, as a part of the formal consultation process with the Fish and Wildlife Service, a meeting was held at the Winema National Forest Supervisor's Office with the following individuals in attendance: Rich Howard, U.S. Fish and Wildlife Service; Barbara Holder; Jack Mathews, Winema Wildlife, Recreation and Range Staff; Al Horton; Bob McQuown; Jack Inman; Ray Frost; Debbie Lewis, District Wildlife Biologist, Chiloquin Ranger District; Bob Chadwick; Craig Bienz, Tribal Fish and Wildlife Biologist, The Klamath Tribe; and John Goold.

Comments and suggestions received from all individuals contacted have been included in the Final Draft of this document whenever appropriate.

A Final Draft was submitted to the U.S. Fish and Wildlife Service, Boise Area Office on January 15, 1981, which then gave a Biological Opinion on April 24, 1981. Refer to Appendix K for a copy of this Biological Opinion.

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INTERDISCIPLINARY TEAM MEMBER CREDENTIALS

John W. Goold	Klamath Ranger District Wildlife Biologist. B.S. Degree from Humboldt State College in Wildlife Management. Wildlife Biologist for Indiana Department of Natural Resources for 11 years. Biologist for the Forest Service for two years. Certified Wildlife Biologist by The Wildlife Society.
Raymond W. Frost	Supervisory Forester (Resource Assistant) on the Klamath Ranger District. B.S. Degree from University of Idaho in Forest Resource Management. One year graduate study in Forest Management (Recreation and Silviculture). Thirteen years resource management experience with the Forest Service in Washington and Oregon.
Alan J. Horton	Klamath Ranger District Silviculturist. B.S. Degree from Southern Illinois University in Forestry. Certified Silviculturist. Stationed at the Klamath Ranger District for two years.

GLOSSARY

DBH	Diameter Breast High. Diameter of a tree measured 4.5 feet above the ground.
DF	Douglas-fir.
EA	Environmental Assessment.
HSH	Shelterwood Harvest.
HSU	Salvage Harvest.
HTH	Commercial Thinning Harvest.
NTM	No treatment.
O&C	Lands formerly owned by the Oregon and California Railroad. Twenty-five percent of the timber receipts are returned to the county in which these lands are located.
PP	Ponderosa pine.
REF	Reforest.
RIM Handbook	Recreation Information Handbook.
SP	Sugar pine.
SPC	Precommercial Thin Treatment.
STD	Standard Yield.
T&E	Plant and animal species which are listed in the Federal Register as threatened or endangered.
TM Plan	Timber Management Plan.
VRM	Visual Resource Management.

A SIMPLIFIED ECONOMIC COMPARISON OF STANDARD TIMBER MANAGEMENT AND EXTENDED ROTATION MANAGEMENT STRATEGIES ON THE KLAMATH RANGER DISTRICT

Alan J. Horton
District Silviculturist
January 6, 1981

Investment strategies, attaching 1980 dollar values to the "standard acre" Managed Yield Table from the Winema Timber Resource Plan and the Eagle Management Area - Extended Rotation Yield Table, are herein outlined and evaluated with respect to internal rates of return, net present values, and benefit-cost ratios. Discount rates of 5%, 7%, and 10% were applied.

Because both investment strategies are essentially the same in the early stages (first 80 years) of the rotations, there is little significant difference in the economic indicators. Indeed, internal rates of return are the same. At a 5% discount rate, net present value difference is only $46.00. To answer the question, then, of "How much are eagles costing us?", one might answer: "Over the course of a 120-year rotation at a 5% discount rate, they 'cost' about 38 cents per acre per year." A more practical conclusion is that intensive management in the eagle habitat management area will likely reduce net present worth only slightly or insignificantly when compared to intensive management on a standard timber management area.

Note that "bare land" investment strategies are presented. There is likely to be considerable revenue from harvest generated before the start of a managed rotation in either case. Also, soil expectation value (net present value to infinity) relationships will not alter the comparative values significantly.

CASH FLOW TABLE FOR ALTERNATIVE B

Current Management Direction - i.e., Manage Standard Acre for Standard Timber Outputs After Regeneration Harvest (120-Year Rotation)

#	Management Strategy	# Years Until Cost or Return	Cut Vol/Acre (Cu Ft)	X	Stumpage Value ($)	=	Net Cash Flow Cost/Ac. (-) or Revenue (+)
1	Site Prep and Plant	0					- $ 169
2	Precomm Thin	15					- $ 82
3	Comm Thin	40	642		3.63		+ $ 2,330
4	Comm Thin	60	1,130		4.74		+ $ 5,356
5	Comm Thin	80	1,695		4.74		+ $ 8,034
6	Regen Harvest	120	7,443		6.29		+ $46,816

Valuations	Sources
$1.66/Cu. Ft. Stumpage Value in 1980 Dollars	District Experience
25% Reduction in Partial Cut Valuations	District Experience
2.7% Annual Stumpage Value Increase x 50 years	RPA Advice
(Costs are from the Winema Timber Resource Plan)	

ALTERNATIVE B

Computer Run Copy

Following is a summary of your input data.

#	Cost (-) Or Return	No. of Years Until Cost of Return	Treatment
1	$-169.00	0	RPL
2	$-81.00	15	SPC
3	$2,330.00	40	HTH
4	$5,356.00	60	HTH
5	$8,034.00	80	HTH
6	$46,816.00	120	HRG

ARE THE ABOVE INPUTS CORRECT (YES OR NO);
?>YES

AN INTERNAL RATE OR RETURN EQUALS 7.85 PERCENT

WHEN NO MORE DISCOUNT RATES ARE DESIRED ENTER STOP
DISCOUNT RATE (10% WOULD BE ENTERED AS 10.)?>5

WHEN THE DISCOUNT RATE IS 5.000 PERCENT,
THE NET PRESENT VALUE IS $705.54
AND THE BENEFIT-COST RATIO IS 4.385

WHEN NO MORE DISCOUNT RATES ARE DESIRED ENTER STOP
DISCOUNT RATE (10% WOULD BE ENTERED AS 10.)?>7.

WHEN THE DISCOUNT RATE IS 7.000 PERCENT,
THE NET PRESENT VALUE IS $99.08
AND THE BENEFIT-COST RATIO IS 1.499

WHEN NO MORE DISCOUNT RATES ARE DESIRED ENTER STOP
DISCOUNT RATE (10% WOULD BE ENTERED AS 10.)?<10.

WHEN THE DISCOUNT RATE IS 10.000 PERCENT,
THE NET PRESENT VALUE IS $-115.13
AND THE BENEFIT-COST RATIO IS .398

CASH FLOW TABLE FOR ALTERNTIVE C

Even-Aged/Uneven-Aged Management of Timber Stands
i.e., Manage Standard Acre for Eagle Habitat
After Regeneration Harvest (240 Year Rotation)

#	Management Strategy	# Years Until Cost or Return	Cut Vol/Acre (Cu Ft)	X	Stumpage Value ($)	=	Net Cash Flow Cost/Ac. (-) or Revenue (+)
1	Site Prep and Plant	0					-$ 169
2	Precomm Thin	15					-$ 82
3	Comm Thin	40	642		3.63		+$ 2,330
4	Comm Thin	60	1,130		4.74		+$ 5,356
5	Comm Thin	80	1,695		4.74		+$ 8,034
6	Comm Thin	100	1,745		4.74		+$ 8,271
7	Comm Thin	120	1,304		4.74		+$ 6,181
8	Shelterwood	160	3,760		4.74		+$17,822
9	Precom Thin (Salvage)	180					$ 0
10	Salvage, Comm Thin	200	777		4.74		+$ 3,683
11	Comm Thin	220	1,130		4.74		+$ 5,356
12	Salvage, Comm Thin	240	1,862		4.74		+$ 8,826

Valuations	Sources
$1.66/Cu. Ft. Stumpage Value in 1980 Dollars	District Experience
25% Reduction in Partial Cut Valuations	District Experience
2.7% Annual Stumpage Value Increase x 50 years	RPA Advice
(Costs are from the Winema Timber Resource Plan)	

ALTERNATIVE C

Computer Run Copy

Following is a summary of your input data.

#	Cost (-) Or Return	No. of Years Until Cost of Return	Treatment
1	$-169.00	0	RPL
2	$-82.00	15	SPC
3	$2,330.00	40	HTH
4	$5,356.00	60	HTH
5	$8,034.00	80	HTH
6	$8,271.00	100	HTH
7	$6,181.00	120	HTH
8	$17,822.00	160	HSH
9	$.00	180	SPC (HSV)
10	$3,683.00	200	HSV, HTH
11	$5,355.00	220	HTH
12	$8,826.00	240	HSV, HTH

ARE THE ABOVE INPUTS CORRECT (YES OR NO);
?>YES

AN INTERNAL RATE OR RETURN EQUALS 7.85 PERCENT

WHEN NO MORE DISCOUNT RATES ARE DESIRED ENTER STOP
DISCOUNT RATE (10% WOULD BE ENTERED AS 10.)?>5

WHEN THE DISCOUNT RATE IS 5.000 PERCENT,
THE NET PRESENT VALUE IS $659.63
AND THE BENEFIT-COST RATIO IS 4.165

WHEN NO MORE DISCOUNT RATES ARE DESIRED ENTER STOP
DISCOUNT RATE (10% WOULD BE ENTERED AS 10.)?>7.

WHEN THE DISCOUNT RATE IS 7.000 PERCENT,
THE NET PRESENT VALUE IS $96.87
AND THE BENEFIT-COST RATIO IS 1.487

WHEN NO MORE DISCOUNT RATES ARE DESIRED ENTER STOP
DISCOUNT RATE (10% WOULD BE ENTERED AS 10.)?<10.

WHEN THE DISCOUNT RATE IS 10.000 PERCENT,
THE NET PRESENT VALUE IS $-114.97
AND THE BENEFIT-COST RATIO IS .391

Silvicultural Guidelines for Eagle Habitat Management on the Klamath Ranger District Winema National Forest

April 1980

by Alan J. Horton

District Silviculturist

INTRODUCTION

Recent designation of nearly 10,000 acres (4050 Ha.) on the Klamath Ranger District as "highest and best use" for bald eagle (Haliaeetus leucocephalus) habitat has led to the current need for silvicultural direction along which we may progress in our quest for maintenance and re-establishment of eagle nest habitats. It is important that one consider both management and "non-management" (protection from wildfire, only) alternatives. Further, we need to explore the consequences of these alternatives upon the various community types represented.

A silvicultural prescription should be site-specific in order to be meaningful. These guidelines provide a framework for future site-specific prescription development. Such prescriptions shall be prepared as treatment needs and opportunities in the area are recognized.

SUMMARY

Eagle habitat management in stands where habitat conditions have been identified as being desirable (or in areas of known active nests) should employ uneven-aged (selection) methods aimed at relieving stress in the existing and potential nest trees. Those stands identified as future replacement habitat should be regenerated by even-aged methods (clearcuts and shelterwoods, primarily) employing all the technology of intensive forest management in order to produce desirable (and stress-free) nesting habitat as rapidly as possible. At about age 180 to 240, when potential nest trees will have reached about 28 Inches (71 cm.) average DBH, the understory may be developed as in the scenario outlined in the Timber Resource Implementation Plan for TSB/V-8 (See Appendix). Alternatively, uneven-aged regimes may be developed at that time for the primary purpose of culturing potential nest trees and secondarily for capturing wood growth of the understory. Aggressive selection for ponderosa pines (Pinus ponderosa) and against white fir (Abies concolor) should occur at each developmental treatment stage.

The objective of maintaining future management options should be underscored

with the thought that we can expect eagle management knowledge to increase concomitantly with our knowledge of ecosystem manipulation. Timely review, at least every five to ten years, is advised. This is merely the first draft of many plans which should develop in our efforts to maintain and improve bald eagle habitats.

OBJECTIVES

Manage for:

1. Ponderosa pine (Pinus ponderosa), secondly sugar pine (P.lambertiana), thirdly Douglas-fir (Pseudotsuga menziesii) overstory, 10 trees per acre (25 trees per hectare) - range 5-15 TPA (12-37 TPH).
2. Mean target DBH 38 Inches (97 cm.), 28 Inches (71 cm.) minimum.
3. 50% of each 40 acres (16 Ha.) continuous block in Eagle Management Area to meet 10 TPA (25 TPH) mature overstory goal.
4. 40% crown closure at target stand level.
5. Enhancement of future options.

APPROPRIATE SILVICULTURAL SYSTEMS

Even-aged Management - Replacement Stands

Even-aged management methods, including regeneration by clearcut or shelterwood, planting with ponderosa pine (principally), sugar pine, and Douglas-fir in 5 to 20 acre (2-8 Ha.) units will provide for the most rapid (early) development of suitable nest trees. Using the Winema National Forest Timber Resource Implementation Plan (unpublished, Draft - 1977), one can look to the Yield Projections therein for guidance. Refer to Visual Resource Management Foreground Retention, Situation: TSB/V-4 and VRM Special Modified Yield, Situation: TSB/V-8. Yields are 60% and 90% of Standard, respectively. (See pertinent extract copies of Timber Resource Implementation Plan in Appendix.)

Essentially, a regime which combines elements of both visual resource management prescriptions should meet eagle habitat management goals for providing "replacement" habitat. "Intolerant" plantations, composed largely of ponderosa pine, should be established where

appropriate. Further, vigorous selection of future nest trees must follow during intermediate treatments. At about age 120 to 180, an understory (principally white fir) may be developed. That understory component can then be cultured with an objective of capturing additional wood growth capacity of the land. At about age 250, the target nest tree minimum average sizes should be achieved, i.e. 28 Inches DBH, 122 Ft. height (71 cm., 37 m.). From that time on, understory manipulation, with the objective of keeping nest trees stress-free, will be essential. Early in the life of a typical replacement stand, understory management using environmentally safe release techniques, pest management, precommercial thinning from below, underburning to discriminate against competing white firs, and commercial thinnings will probably be needed in order to optimize growth rates.

Uneven-aged Management - Current Stands

Most stands in the area are characterized by uneven-aged structures with dimunition quotients of about 1.5 - typical of the ("more researched") northern California mixed conifer types. As a means for enhancing habitats which currently meet eagle needs, both

individual tree selection and group selection methods aimed at giving competitive advantage to and promoting (prolonging) mature ponderosa pines (or other species which are clearly the tallest mature trees in the stands) in dominant canopy positions are appropriate. These methods will be particularly suitable in areas within one-fourth mile (400 meters) of active nest sites. (Here, the District Wildlife Biologist and District Silviculturist should jointly apply selection markings on-the-ground.)

Additionally, after about age 250 years in the "converted" situation, uneven-aged treatments may be applied in order to maintain nesting habitat in a condition as stress-free as possible. A long-run consequence in the application of selection methods for most of the ecological communities represented will be to gradually convert to white fir dominated stands.

Other Silvicultural Considerations

Two concepts are especially important in the mixed conifer and white fir communities which comprise about 70% of the Eagle Habitat Management Area (Ecoclass CW-C2-15, 50% and CW-H1-12, 20% - Hopkins 1979). First, with exclusion of fire in these communities, white fir will (currently) take dominant advantage (in terms of stocking density) of the sites. Therefore,

in the pursuit of healthy ponderosa pine (and sugar pine or Douglas-fir) nest trees, it will be necessary to aggressively relieve the stress that the (dense) white fir understory thickets will exert on the target trees. Prescribed fire, as well as vigorous thinnings may be used to achieve this objective. Secondly, many of the same intensive management methods commonly employed in areas with timber management emphasis, i.e. fertilization, planting of genetically improved stock, release from brush and sedge, and pest management may all be applied in regeneration areas so that target-sized trees may be grown as rapidly as possible. Truly intensive management may be desirable. Indeed, ten year cutting cycle intervals may be more appropriate than the (Timber Management Plan) twenty year entry cycles.

Stands in ecoclasses CP-S2-11 (4%), CR-S3-11 (7%), and CL-S4-13 (3%) should also be treated on a stand by stand basis. Generally, however, many of the foregoing concepts will apply. Refer to Hopkins' Plant Associations guide for further detail.

CONCLUSION

Successful eagle habitat management will require more intensive vegetation manipulation than has heretofore occurred on the District. That management will be characterized by intensive even-aged and uneven-aged methods with yield reductions of about 10% to 20% of Standard. The principal aim is provision of optimum eagle habitat; there is also plenty of opportunity for timber management complementary to that aim.

CONSULTATIONS

John Goold, Wildlife Biologist, Klamath Ranger District, April 1980.

Raymond Frost, Resource Assistant, Klamath Ranger District, April 1980.

Erwin Hafenstein, Silviculturist, Winema National Forest, September 1980.

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USDA Forest Service

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VIII. MANAGEMENT REQUIREMENTS AND CONSTRAINTS

Management of the McLoughlin-Klamath Planning Unit requires compliance with all of the laws, rules, regulations and policies pertaining to National Forest Lands. Many of the most significant laws have been noted previously. The following management requirements and constraints provide additional, more site specific detail supplementing the Preferred Alternative, regarding management of the land and resources within this particular Planning Unit.

PELICAN BUTTE - Management activities will be planned and conducted to fully recognize, and not impair, future potentials for development of both developed and undeveloped (dispersed) winter sports opportunities.

A. Unproductive/Non-forest lands, plant community 10 (Mountain hemlock/Grouse huckleberry/long-stolon sedge) will be managed in a natural, undisturbed condition.

B. Commercial forest lands in plant communities 9 (Shasta fir/pinemat manzanita/long-stolon sedge) and 6 (Shasta fir/white fir/chinquapin long-stolon sedge) will be managed, utilizing logging systems that do not require roads. (The option for construction of roads necessary to support winter sports development in these areas is retained).

C. Timber management in the remainder of the allocation is permitted, with road construction to support the activities.

DEVELOPMENT CONSIDERATIONS: The Land Management Planning process provides only for allocation of an area for possible development of winter sports facilities. Economic feasibility is not considered. It is a potential developer's responsibility to determine feasibility within the framework of the following constraints; which are considered the minimums to assure that any potential development is of highest quality.

1. Forest Service policy is that a new development will be allowed when it is shown that existing and planned facilities cannot meet user demands.

At present, Regional ski area needs are being met at Bachelor Butte, which still has expansion potential. In addition, future considerations may also have to be given to other ski areas near the Planning Unit. In effect, this factor alone means that Pelican cannot be considered for regional scale development for some time in the future. Pelican Butte must also be considered in context with the existing Tomahawk Bowl development. The Forest Service will work with the local permittee to see if this area can be operated in such a way that it will meet local skiing demands reflected in the 1975 Klamath Falls area winter sports survey conducted by the Alle Mage Ski Club.

At this point in time, we do not forsee a demand for Pelican Butte as a National ski area.

2. Development of winter sports facilities must be compatible with County Comprehensive Plans and meet the intent of the County-Forest Service Agreement (see pages 58, 59). Coordinated planning is essential to help insure success of any proposed development.

3. More formal data must be collected to evaluate any proposal. For example, detailed information on Pelican Butte's snow quality and quantity is needed. The Forest Service is collecting snow data.

4. Base facilities must be located at or above the 5,200 foot level.

Any potential development in the area must be compatible with adjacent resource values. Of prime consideration is maintenance of natural conditions of Klamath Marsh and its related wildlife values. Distance between the Marsh and a base area, where people and vehicles will congregate, is considered critical. This is one reason for specifying a base area location. Secondly, a base area at higher elevations reduces conflicts in terms of impacts on the commercial Forest land base. Finally, snow is critical to the success of a winter sports area. A base area at or above the 5,200 foot level provides some additional assurance that this commodity will be available.

5. Initial development will be limited to 2,000 skiers per day. For initial development, and any and every expansion proposal beyond that number, an Environmental Impact Statement will be prepared, again reflecting constraints 1 and 2.

The environmental statement process for initial development is essential. The specifics of a proposal must be known before the impacts can be adequately assessed on a detailed, site specific basis. A development with a capacity for 2,000 skiers per day, with parking, power, waste disposal and other facility needs is a major impact and of concern to a number of agencies and people. (It should be noted that Mt. Bachelor is an example of an area where initial development began on a small scale).

6. Development proposals must include consideration of lowcost snow play opportunities. A winter sports development can provide lowcost snow play opportunities for those who enjoy snow activities, other than downhill skiing, and for those who cannot afford the costs associated with downhill skiing.

7. Power transmission lines on National Forest Lands must be underground. (Applicable to any development proposed for Pelican Butte.)

8. The Forest Service will not issue a development prospectus for the area. Anyone interested in development is provided with a firm base, in terms of capacity, location, expansion considerations, etc., to begin planning from.

Concern has been expressed that a local ski development is not economically feasible. This may or may not be the case. Economic feasibility does not necessarily mean that the development itself is not feasible. There are options, such as development and operation by a nonprofit organization using donated labor, etc. (Warner Canyon Ski Area on the Fremont National Forest, for example).

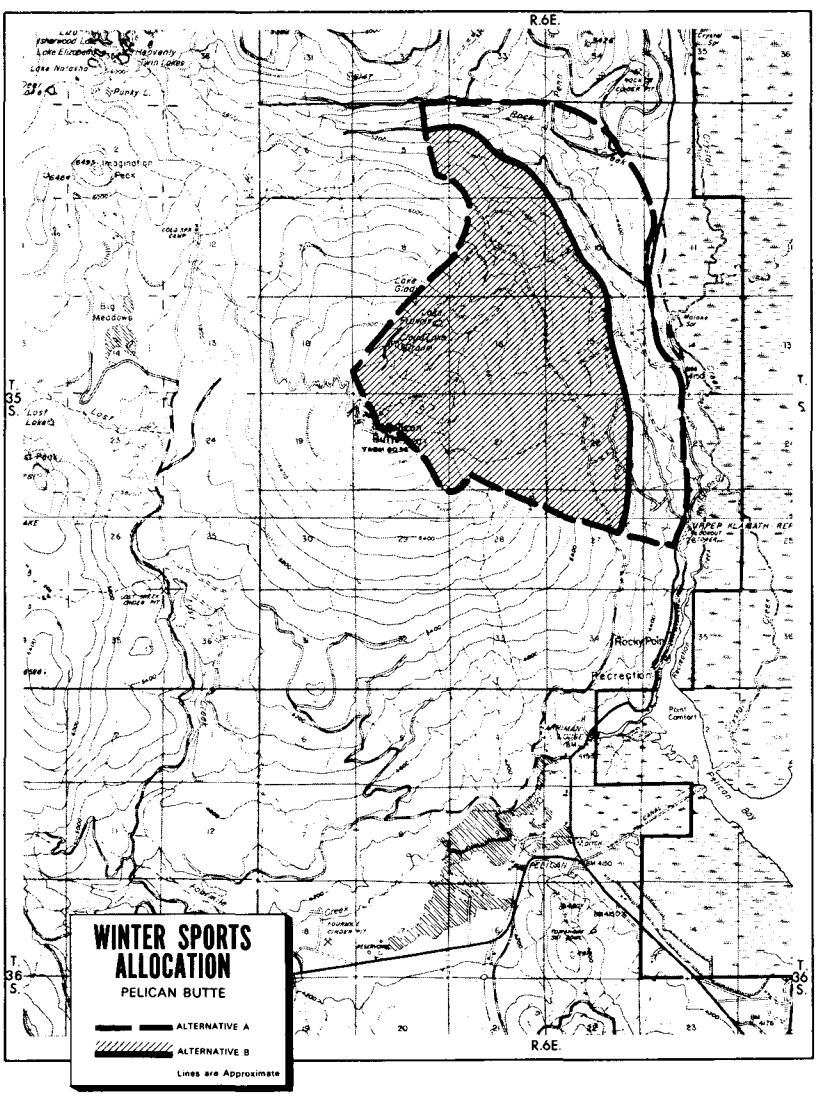
PELICAN BUTTE-WINTER SPORTS DEVELOPMENT POTENTIAL

Various acreages can be allocated in developing alternatives which consider development of the winter sports potential on Pelican Butte. There is an assumption that a larger acreage allocation would consider potentials for a large - national or regional - development. Fewer acres assume a potential for a smaller - local - development, with potential for expansion, perhaps to a regional area. The types of development are defined in Appendix I.

Consideration for potential future development of winter sports opportunities on Pelican Butte, through the range of alternatives, is as follows:

ALLOCATIONS FOR POTENTIAL WINTER SPORTS SITE DEVELOPMENT

ALTERNATIVE	A	B	C	D	E
ACRES	5,380	3,100	0	0	0



VICTOR ATIYEH
GOVERNOR

Department of Fish and Wildlife
REGION 3—CENTRAL OREGON
61374 PARRELL ROAD, BEND, OREGON 97701 PHONE 382-5113

December 15, 1980

4343 Miller Island Rd.
Klamath Falls, Oregon
97601

John Goold, wildlife biologist
Klamath Ranger District
Winema National Forest
1936 California Ave.
Klamath Falls, Ore. 97601

Dear John:

Thank you for the opportunity to review a copy (draft) of the Klamath (RD) Bald Eagle Habitat Management Area proposal. The report and its contents are very impressive; you are to be commended. The proposed 10,700 acre management area is a very favorable management direction, one Dan Eastman and I have supported for several years.

I am very sorry but department meetings preclude either Rod or myself participating in your meetings on the 16th and 17th of December. I feel we need to be a party to such proceedings; perhaps at a later review? As the State agency sharing management responsibility of the bald eagle, as a species, we will hopefully become more active in this type of planning and plan-review process.

I made a cursory review of the proposed plan and will offer a few comments to points or problems more obvious to me. There is a considerable amount of timber management language and schemes that I don't understand but hope to someday.

The zone concept of management for bald eagles is encouraged where practical as it obviously is here. I strongly concur that the area has to be managed (as most alternatives indicate) and further support the idea that a qualified biologist help design logging schemes in the Area, but especially at or around nesting territories.

I consider most Klamath Basin bald eagles as being mostly residential and are at their territories much of the year. We don't know yet the effect of disturbance to birds during the so-called 'off season' period.

I recommend agains further human development which would create additional

distrubances to the resident species as Alternate A, page 27 suggests may happen. Such potentials should increase the need in gaining ownership or other management securement of all key private lands crucial to bald eagles within the management zone. (With adoption of the Bald Eagle Management Plan land acquisition, as identified in the Endangered Species Act of 1973, can be accomplished more easily.)

Historic and/or unused territoiries should be retained or strongly considered as Key or priority Potential habitat. I am not to clear on the quality or amount of "expanded" nesting population as projected through habitat improvement (pages 35, 44 and 46).

There appears to be a lack of a monitoring system in the Plan to measure proposed land-use impacts to eagles. I would like to caution against using the birds as indicator something strongly advers is occuring.

Will the Plan still involve specifice nest (territory) site management plans? I believe such site plans sill allow keeping a better 'handle' on each established territory.

If I or my department can be of further assistance please contact us. If needed the Oregon/Washington Bald Eagle Work Team is available for assisting or reviewing in such management planning. I am looking forward the final 'Plan'.. Would it be to your favor to have the ODF&W as an official party to the Plan (sign off)?

Respectfully submitted,

Ralph Opp

Ralph Opp
Ore. BE Coordinator
Klamath District

cc: ODFW - Central Reg. Office (Mathisen/Golden)
- Portland Office (Newton/Harper)

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Klamath Ranger District
1936 California Ave.
Klamath Falls, OR 97601

REPLY TO: 2630 Habitat

September 18, 1980

SUBJECT: Environmental Assessment for the Klamath Eagle Habitat Management Plan

TO: Jack Inman, Frances Philipek, Garwin Carlson, Christina Schroeder, Bob Yoder, LeeRoy Salsberry, and Priscilla Summers

As most of you may be aware, the Winema has received new management direction from the Regional Office concerning the management of Bald Eagles which changes considerably our past policy of managing only 10 chains around each identified nest with a restricted operating season around active nests. In order to seize the initiative on eagle management in Region 6 and possibly throughout the United States, the Klamath District is developing an eagle habitat management plan which will affect about 10,000 acres and adjacent to Upper Klamath Lake.

In order to initiate such a plan an Environmental Assessment must be completed. A draft copy of this E.A. was completed earlier this summer and was about to be sent to you for review, however, we have been informed by an R.O. E.A.R. Review Team this past week that this procedure would not follow the N.E.P.A. process. Therefore, in order to follow the N.E.P.A. process (I understand this will be the procedure for all future E.A.'s) I am requesting that you submit to the I. D. Team for this project any issues and/or concerns you may have no later than October 6, 1980. I have scheduled a meeting for 8:00 A.A., October 8 at the District Office to discuss any issues or concerns I have received. Attendance is optional.

According to the new I.D. Team process this would normally be the only chance you as consultants would have for input into the E.A.. However, due to the large scope of this project and this is the first time for this input process, you will probably get an opportunity to review the next draft of the E.A. before it is sent to the R.O. and the Fish and Wildlife Service for review and comment. Even though this E.A. covers a large area you must be specific with your issues and concerns. The I.D. Team already knows we must be concerned with soils, cultural resources, visuals, etc.. We need to know any specific concerns related to the proposed project.

I have enclosed a copy of the E.A. Introduction and a map of the project area. The I.D. Team Members include myself, Ray Frost and Al Horton and we have the Ranger's backing 110%.

John W. Goold

JOHN GOOLD
District Wildlife Biologist

Enclosure

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
WINEMA NATIONAL FOREST
KLAMATH RANGER DISTRICT
1936 CALIFORNIA AVENUE
KLAMATH FALLS, OREGON 97601

IN REPLY REFER TO
2630
December 17, 1980

Dr. Robert Anthony
104 Nash Hall
Oregon State University
Corvallis, OR 97330

Dear Bob,

Enclosed is a draft copy of the Klamath Ranger Districts' bald eagle habitat management plan. I was severely remiss in not getting a copy to you before now since you and your researchers have a considerable interest in the area and have contributed significantly to the development of the plan. As you are aware, we held a meeting on the Winema on December 16 to discusss the plan with Barbara Holder of our Regional Office and Rich Howard from the Fish and Wildlife Service.

With a few minor changes it appears that the plan will be approved by the Fish and Wildlife Service through the formal Consultation Process and implemented as soon as it has been signed by the Forest Supervisor. One thing which needs to be added and clearly defined is a program to monitor activities within the project area and the response of eagles to these activities. I would like for you to review this plan and make any comments or additions you feel are appropriate. We will be moving ahead toward Consultation and implementation very rapidly. Therefore, I will contact you by phone the first week in January for comments you might have at that time. Of particular interest will be your input concerning monitoring, especially potential research. Please keep in mind that once this document is signed by the appropriate officials, it does not mean it is cast in concrete forever. It is intended to be a very dynamic plan which will be reviewed and changed as new information is available. If you have any preliminary data from your studies that you feel would be good to include in the appendix at this time, please forward it to me.

John W. Goold

JOHN GOOLD
District Wildlife Biologist

Enclosure

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Winema National Forest
P.O. Box 1390
Klamath Falls, Oregon

REPLY TO: 2630

September 19, 1980

SUBJECT: Issues and Concerns on E.A. for Klamath Eagle Habitat Management Plan

TO: John Goold, Wildlife Biologist

1. Road development in area.

   (Current density, reduced density, increased density).

2. Road restrictions.

   (Year round restrictions, closed roads, open roads).

3. Maintenance and construction activities restricted.

4. Affect on road use restrictions on developed and dispersed recreation.

5. Private owners and their activity impact on eagle habitat.

BOB YODER
Supervisory Civil Engineer
09/19/80

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

R5
Tahoe National Forest

REPLY TO: 2630 - Management of Wilderness and Fish Habitat

December 8, 1980

SUBJECT: Klamath Bald Eagle Habitat Management Area EA

TO: John Goold
Klamath Ranger District
Winema National Forest

Since I am not a bald eagle "expert" my comments are largely of a technical nature on the EA itself. The preferred alternative appears reasonable to me. I think you need to separate objectives from the Introduction. The EA will read better with some technical editing; see my notes as an example. You need a good map when you describe the area; it is too cumbersome to have to go to appendices. Evaluation criteria are fine. You need to clarify the "50% of each 40 acres" objective. Alternative summary table is good. If I were a decision-maker, or a concerned citizen, I would want to see an economic analysis in addition to the predicted timber falldown. For instance, what are the costs and returns of each alternative over the next two to three decades?

I sure like the Silvicultural Guidelines and Special Wildlife Habitat Management Situations approaches. With these and your TRI and Veg Associations you are way ahead of our wildlife planning capabilities.

Thanks for the opportunity to review this draft. I would like a copy of the final EA.

Hal

HAL SALWASSER
Regional Wildlife Ecologist

WHITE FIR/CHINQUAPIN-BOXWOOD-PRINCE'S PINE CW-H1-12

ENVIRONMENT

Location: Klamath and South Chiloquin
Aspect: All aspects (west to southwest)
Elevation: 3900-5600 ft.
Percent Slope: 2-50
Slope Position: Lower to mid-third
Topography: Sideslopes and ridgetops

SOILS

Geology: Andesite and basalt
Grass Rooting Depth: 5-20 in.
Tree/Shrub Rooting Depth: 15-35 in.
Percent Stone: 0-60
Texture: Loams
Special: Deep soils over basin, compactible when wet; surface boulders locally important

VEGETATION

Dominants	Percent Cover		Constancy		Status
	OS	US	OS	US	
White fir	0-60	0-50	95	95	Major Climax
Ponderosa pine	0-30	0-5	80	50	Major Climax
Douglas-fir	0-60 (80)	0-30	90	70	Major Climax
Western white pine	0-10	0-10	50	50	Seral
Chinquapin		0-60		85	Increaser
Boxwood		0-5		60	Increaser
Prince's Pine		0-30		80	Decreaser

Ground Vegetation: Highly diverse ground cover, always closely related to the amount of openings created in stand canopy. Chinquapin is the dominant shrub in majority of stands. Heavy white fir regeneration prevalent, associated with sparse ground cover. Major herbaceous plants are twinflower, rattlesnake plantain, long-stolon sedge, and both sidebells pyrola and whitevein pyrola.

Indicators: Twinflower often associated with deep soils; long-stolon sedge more prevalent upslope on rocky soils; increase in elevation associated with increase in BA of Shasta red fir and decrease in BA of Douglas-fir. Presence of Oregon grape suggests dry site, rocky soils.

Silviculture: High productivity site for ponderosa pine, white fir, and Douglas-fir. Douglas-fir best cultured at lower elevational position as described for this association, while white fir and Shasta red fir best suited for upslope positions; some opportunity for ponderosa pine on dry or open mid-slopes. Both white fir and ponderosa pine should be cultured on the same site but attention should be given to varying microsite differences in order to realize best biological opportunity. Thinning of natural thickets will maximize growth. White fir is aggressive in terms of occupying sites with vast numbers of progeny. Opportunity exists to use western white pine as a cover crop. Stockability by species (monotypically) is 205-269 sq. ft. BA/acre for white fir, 102-204 sq. ft. BA/acre for ponderosa pine, and 188-256 sq. ft. BA/acre for Douglas-fir.

Revegetation: On steep rocky ground revegetation may be a severe problem if the soil has been extremely fluffed or displaced. Annual rye or wheat can be used on steep ground to quickly stabilize erodible soils. A perennial grass mix of intermediate wheatgrass, hard fescue and orchardgrass should have fair to good success.

Problems Associated with Management: Heavy dwarfmistletoe in Douglas-fir; fir engraver beetle often present in overstocked stands of white fir. Severe site disturbance or burning will create a site occupancy problem with chinquapin and long-stolon sedge. High amount of defect in most old growth stands of true firs. Damaged white fir crop trees must be avoided; root pruning on steep ground must be avoided.

PRODUCTIVITY (14 plots)

	SI			TBA			GBA			Ft³/yr. Index		
	(WF)	(DF)	(PP)	(WF)	(DF)	(PP)	(WF)	(DF)	(PP)	(WF)	(DF)	(PP)
Mean	113	116	97	140	60	27	237	222	153	144	145	82
5% CI	5	12	7	25	18	10	32	34	51	22	31	29

PONDEROSA PINE/BITTERBRUSH/FESCUE CP-S2-11

ENVIRONMENT

Location: South Chiloquin
Slope Position: All
Aspect: All aspects
Percent Slope: 1-10
Elevation: 4500-4900 ft.
Topography: Toeslopes, bottoms, sideslopes and ridges

SOILS

Geology: Pumice over andesites, basalts and sedimentary
Grass Rooting Depth: 6-10 in.
Tree/Shrub Rooting Depth: 23-35 in.
Percent Stone: 10-30
Texture: Loams
Special: Pumice soils; surface 12 in. of soil dries quickly in spring

VEGETATION

Dominants	Percent Cover		Constancy		Status
	OS	US	OS	US	
Ponderosa pine	10-30	10-60	100	100	Major Climax
Western juniper		0-1	0	50	Minor Climax
Mountain-mahogany		0-10		50	Decreaser
Bitterbrush		10-30		100	Increaser
Idaho fescue		10-30		100	Decreaser, Low in Palatability

Ground Vegetation: Bitterbrush dominates the shrub layer in this community; on shallow soils, mountain-mahogany and western juniper locally important. Fescue forms bunches across stands and may intermix with some needlegrass near edge of community. Common herbaceous plants are strawberry, yarrow, clover, Ross' sedge, and biscuitroot.

Indicators: Mountain-mahogany and western juniper indicates shallow soils and marginal site; presence of big sagebrush in association with mountain-mahogany and western juniper implies a ponderosa pine savanna and probably **NONCOMMERCIAL.**

Silviculture: Moderately high commercial site; small clearcuts best silviculture treatment in order to protect natural regeneration and soils. Good range potential if care is used to protect fescue; fescue may be severe competitor if in good range condition; naturals generally started in protective cover of bitterbrush canopy. Regeneration often difficult if not planted when sufficient moisture present to insure establishment. Auger planting suggest best results in terms of percent established. Site preparation necessary.

Revegetation: Poor to fair success with most grass mixes; intermediate wheatgrass, pubescent wheatgrass, Russian wildrye and hard fescue suggested. Bitterbrush will increase in height and cover following opening of stand.

Problems Associated with Management: Large openings in stand will stimulate fescue and bitterbrush; dwarfmistletoe infestation common; **Elytroderma** needlecast present in most areas. Compaction of moist soils possible in spring. Manager must be able to recognize where **COMMERCIAL** and **NONCOMMERCIAL** sites exist in same area.

PRODUCTIVITY (2 plots)

	SI (PP)	TBA (PP)	GBA (PP)	Ft^3/yr. Index (PP)
Mean	78	140	142	61
5% CI	*	*	*	*

* Data too variable for a confidence interval

LODGEPOLE PINE/HUCKLEBERRY/FORB CL-S4-13

ENVIRONMENT

Location: Klamath District
Slope Position: Lower slopes and bottoms
Aspect: Northeast to south
Percent Slope: 0-3
Elevation: 5000-5700 ft.
Topography: Lower toeslopes and basins

SOILS

Geology: Colluvium
Grass Rooting Depth: 2-8 in.
Tree/Shrub Rooting Depth: 25-30 in.
Percent Stone: 0-30
Texture: Loams
Special: Areas of cold air accumulation; seasonally high water table

VEGETATION

Dominants	Percent Cover OS	Percent Cover US	Constancy OS	Constancy US	Status
Lodgepole pine	10-50	0-10	100	90	Major Climax
White fir	0-5	0-10	20	60	Minor Climax
Shasta red fir	0-1	0-10	20	40	Minor Climax
Huckleberry		0-30		80	Increaser
Long-stolon sedge		0-30		60	Increaser

Ground Vegetation: Diverse and abundant ground cover of both shrubs and herbs on most sites; red and dwarf huckleberries often present but grouse huckleberry most common shrub on most sites. Shasta red fir and white fir most common as reproduction in small pockets but occasionally somewhat widespread; quaking aspen may be present on wetter parts of stand. Diverse herbaceous cover composed mainly of strawberry, long-stolon sedge, brome, twinflower, lupine, long-stem clover, and starry solomonplume.

Indicators: Lush understory of low growing shrubs with a rich herbaceous component. Twinflower in understory on better sites; grouse huckleberry on more severe sites. Engelmann spruce indicates wet soils.

Silviculture: High commercial site; lodgepole pine is the pioneer species and is maintained naturally by occasional fires; Shasta red fir invasion usually on edges where lodgepole pine served as a cover crop; white fir invasion due to lack of fires; Engelmann spruce and mountain hemlock may be present on high elevation sites or wet areas such as drainages or seeps. Scarification of native vegetation necessary for planting; shelterwood best suited for community because of thermal protection required for regeneration. Stockability for lodgepole pine is 147-175 sq. ft. BA/acre. Natural regeneration common, planting may not always be required. Generally, lodgepole pine should be cultured on these sites.

Revegetation: Native vegetation usually sufficient to stabilize site following harvest activity. Perennial grass seed mix of orchardgrass, hard fescue, and timothy suggested.

Problems Associated with Management: Dwarfmistletoe and western gall rust common throughout the stand; multiple-stems often abundant; stalactiform rust infections often heavy. Pocket gophers may be locally important.

PRODUCTIVITY (5 plots)

	SI (LP)	TBA (LP)	GBA (LP)	Ft³/yr. Index (LP)
Mean	90	193	161	80
5% CI	10	36	14	12

ENVIRONMENT

Location: Klamath District
Slope Position: Lower to mid slope
Aspect: North to east (south)
Percent Slope: 10-40
Elevation: 4700-5500 ft.
Topography: Toeslope and sideslopes

SOILS

Geology: Andesite and basalt
Grass Rooting Depth: 10-20 in.
Tree/Shrub Rooting Depth: 25-35 in.
Percent Stone: 10-70
Texture: Loams
Special: Northern one-fourth of district covered with pumice mantle

VEGETATION

Dominants	Percent Cover		Constancy		Status
	OS	US	OS	US	
Ponderosa pine	5-30	0-10	100	80	Major Climax with fire
White fir	5-50	5-30	100	100	Major Climax without fire
Douglas-fir	1-30	1-40	100	100	Major Climax
Sugar pine	1-30	0-5	100	80	Minor Climax
Incense cedar	0-10	0-5	80	80	Minor Climax/seral
Snowbrush		0-30		80	Increaser
Bearberry		1-20		100	Increaser
Chinquapin		0-30 (80)		70	Increaser
Snowberry		0-20		80	Increaser
Prince's pine		0-20		80	Decreaser
Boxwood		0-10		70	Decreaser

Ground Vegetation: Diverse community with large variety of shrubs and herbaceous plants. Often heavy white fir reproduction associated with past stand entry and lack of fire. Chinquapin constitutes greatest brush cover with snowbrush, manzanita, and squawcarpet contributing additional cover (5-50%). Boxwood and prince's pine contribute 1-20 percent; other important plants include strawberry, hairy hawkweed, and long-stolon sedge.

Indicators: Severe logging and burning will cause a great increase in brush cover; chinquapin, snowbrush, and manzanita will quickly occupy a site with manzanita and chinquapin establishing first, followed by snowbrush. Boxwood and bearberry with 1-30 percent cover imply a stable community.

Silviculture: High commercial site for ponderosa pine, white fir, and Douglas-fir. Douglas-fir and white fir best cultured on mid to upper limits of community with ponderosa pine being cultured on outslopes and drier parts of the community. Community generally overstocked with white fir and Douglas-fir, offering a wide range of opportunities for thinning. Stand should be managed for 2-3 species; stockability (monotypic) is 113-217 sq. ft. BA/acre for ponderosa pine and 99-387 sq. ft. BA/acre for white fir and 110-230 sq. ft. BA/acre for Douglas-fir.

Revegetation: Annual rye or wheat should be used immediately following any severe activity in order to establish a fast root system; a perennial grass mix of intermediate wheatgrass, hard fescue, and orchardgrass should be added either at the same time or in the fall of the same year.

Problems Associated with Management: Prompt regeneraton a must as entire community is potential brush problem due to increasers in stand; long-stolon sedge will also occupy site. Overstocked white fir and Douglas-fir areas will tend to exclude ponderosa pine regeneration. Barked or damaged white fir will often develop heart rot if not harvested in a short period. Number of entries should be held to minimum. Herbicide release may be required 5-10 years after planting to maintain desired tree growth.

PRODUCTIVITY (6 plots)

	SI				TBA				GBA				Ft^3/yr. Index			
	(PP)	(WF)	(DF)	(SP)	(PP)	(WF)	(DF)	(SP)	(PP)	(WF)	(DF)	(SP)	(PP)	(WF)	(DF)	(SP)
Mean	88	107	100	81	58	95	27	11	165	243	170	149	82	148	94	66
5% CI	11	15	8	12	24	52	15	7	52	144	60	*	32	107	37	*

* Data too variable for a confidence interval

SPECIAL WILDLIFE HABITAT MANAGEMENT SITUATIONS

The objective is to provide habitat capable of sustaining minimum populations of existing wildlife species in each of the major plant community types. Wildlife biologists have identified wildlife habitat types, they have been mapped-in-place, installed on TRI photo maps and in the TRI cell file. The wildlife habitat types were classified as special land component in the timber resource planning process. Through the use of managed yield tables, we are able to describe a silvicultural treatment to meet wildlife objectives and to weigh the effects of the management scheme on timber production. Wildlife species inhabiting the different community types have been inventoried and their habitat needs described in the wildlife habitat situations to follow:

Situation: Wildlife Habitat - Westside Road/Marsh (no yield)

TRI Management Code: TSA
W-1A

Eco-Situation: Old growth mixed conifer plant community CW-C2-15, in the Malone, Cherry, Nannie, and Point compartments lying between the Westside Road and Klamath Marsh. The area provides habitat for numerous species of wildlife including bald eagles, osprey, pileated woodpecker, and wood ducks. The U.S. Fish and Wildlife Service has declared the Bald Eagle as threatened in Oregon.

Habitat Needs and Management Direction: This area will be managed to meet the habitat needs of the bald eagle and osprey as outlined in situation W-1B. A specific management plan will be developed for the area. Timber management will be limited to that designated for habitat manipulation to meet wildlife goals and salvage of trees in excess of wildlife needs.

Situation: Wildlife Habitat-eagle, osprey nesting, roosting

TRI Management Code: TSB (Modified yield)
W-1B

Eco-Situation: Old growth mixed conifer, pine, or pine-associated stands containing eagle or osprey nest and roost habitats. May also include presently unused or alternate sites meeting specific requirements as identified by wildlife biologists for replacement of lost habitat or that are necessary to insure self-sustaining populations of these species. The bald eagle is threatened in Oregon. May provide habitat for accipiter hawks: Goshawk, Coopers hawk, and sharp-shinned hawk.

Habitat Needs: The bald eagle and osprey are basically water oriented birds. In breeding and nesting seasons, January 1 through August 31, both species occupy nearly identical habitats and in some cases may have overlapping territories. Osprey migrate out of this area in early September, returning in mid March. Their nests are usually constructed in large coniferous trees near lakes or streams (up to 3 miles airline distance). Eagle nests are usually located slightly below the crown of the tree. Osprey nests are usually located on the very top of the tree.

There are five environmental requirements generally associated with nesting areas and nest tree selection.

1. A clear flight path from the nest to the food foraging area.

2. A timber stand with relatively larger (dominant overstory) stems projecting above the canopy.

3. Perch, pilot, and nest trees that afford an open view of the surrounding area. Perch trees are large dead or live snag topped trees used as nesting or area surveilance points. A pilot tree is

used by eagles as an access point coming to and from the nest. It may be either a dead or live tree and usually is the nearest dominant tree to the nest, normally within 100 feet of it.

4. Suitable nest, perch, and pilot trees located in close proximity (up to 3 miles) of body of water or adequate food supply.

5. The area must be free from excessive human disturbance or intervention.

The golden eagle has the same nest requirements as the bald eagle, but is not water oriented.

The Klamath Basin is a historic wintering area for bald eagles. The 1976-77 estimated population was between 500 and 600 birds. The wintering population is tied to the seasonal waterfowl migration and other food available in the Basin. The birds utilize communal night roost trees throughout the Basin until hard freezeup limits their food supply, at which time they move into larger communal roosts near open water and concentrations of waterfowl.

The basic requirements of roosting habitats are the same as those described for nesting habitats. However, roost trees are in locations that are protected from storms and chilling winds. This protection may be provided by ridges, mountains, or adjacent stands of trees.

Management Direction: Management direction is divided into sections related to nesting, feeding, and roosting habitats.

1. Nesting: Nest areas are divided into primary and secondary management zones, within each of which certain human activities, during the

critical period, have been found to disturb the nesting process. Critical periods are as follows: Eagles - January 1 through July 31; Osprey - April 1 through August 31.

a. Primary Zone: The primary zone is the most critical area immediately surrounding the nest. As an average, it will encompass a five chain (330 feet) radius around the nest tree. Size and shape will be determined by actual use patterns, topography and other pertinent physical features. The area will be managed to provide a two-storied, semi-dense stand of mature timber with a semi-dense to dense stand of reproduction. Some stand manipulation will be necessary over the years to keep the area acceptable to the birds. Such manipulations will be coordinated between a wildlife biologist and a silviculturist to meet desired goals. No other land use activities will be allowed. Human entry will be restricted during the critical period.

b. Secondary Zone: The secondary zone provides a buffer to further minimize disturbance in the nest area. Generally it will consist of an additional five chain radius outside the primary zone. Size and shape will be determined by actual use patterns, topography and other pertinent physical features. This zone will be managed to resemble an uneven-aged, lightly harvested stand of timber. Silvicultural direction to meet these objectives will probably be limited to sanitation salvage and light selective cuts with multiple-aged management. Scheduling of these activities will be coordinated between a silviculturist and wildlife biologist. No harvest activities

will be allowed during the critical period. No land use activity will be allowed which would permanently disturb or detract from the existing habitat. Examples of such activities would be construction of new roads, trails, or recreation facilities. Occasional and limited intrusion such as solitary hiking, bird watching, or fishing may normally be allowed during the critical period without danger of extensive disturbance.

c. Management Direction Common to Both Zones: Chemicals toxic to the birds will be excluded from use in these areas. These include DDT, other persistent organochlorine pesticides, PCB, mercury, lead, and 2,4,5-T. Use of firearms, camping, and picnicking will be discouraged in the critical period. In some areas complete restriciton may be necessary. Such restriction would require considerable coordination with other federal and state agencies.

If a pair of eagles chooses to establish a new nest in an area already receiving human use, the human use occurring at the time can continue, except for the use of toxic chemicals. Expanded human activity will be avoided and management direction will follow established policy as close as possible.

2. Feeding: Land use activities will not restrict the birds access to, or destroy natural feeding areas or food sources.

a. Toxic chemicals will not be used in areas immediately adjacent to, or be allowed to enter bodies of water where eagles and osprey are know to feed.

b. Timber Harvest near shoreline of feeding areas will be modified to lessen disturbance and leave adequate fishing perches. Streamside management guides and wildlife tree (snag) management guides provide direction to meet this need.

c. Land management activities will maintain adequate primary food supplies to sustain these species.

3. Roosting: Current wildlife tree management allocations and managed old growth stands should provide adequate roosting habitat outside nest sites. Any area located outside existing nest sites, identified as a primary winter communal roost, will be designated as such. Management direction basically will be the same as that for a nest site.

Six commercial thinning entries will be made at twenty year intervals until the stand reaches age 120 and about 22 inches DBH. The trees have now attained old growth size and for the next 115 years the stands will not be given stocking level control. A regeneration harvest will be initiated when the trees are 235 years old. This extended rotation results in a usable cubic foot production performance that is about 65% of standard.

PONDEROSA PINE - A similar management regime for this species group results in a usable cubic foot production performance approximately 65% of standard.

TRI Management Code: TSB/W-6

PINE-ASSOCIATED - Similar management regime and 60% of standard.

TRI Management Code: TSB/W-7

LODGEPOLE PINE - Similar management - 65% of standard.

TRI Management Code: TSB/W-8

TRI Management Code	TSB (Modified yield)
Klamath Ranger District	W-5A

Situation: These are timber stands that are providing old growth habitat for resident spotted owls in which existing or scheduled harvest has or will reduce the suitable old growth habitat. Current research recommends a 300 acre minimum territory size for nesting pair.

Management Direction: Owl survival and nesting success will be monitored in the residual stands during and after harvest. No further harvest will be scheduled in these stands within the remainder of the existing 10-year operating period to facilitate the monitoring program.

TRI Management Code	TSB (Modified Yield)
Klamath Ranger District	W-5B

Situation: These are timber stands that will be scheduled to provide old growth habitat for resident spotted owls. Some of the stands are currently in old growth status with owl populations. Other stands, located adjacent to existing inhabited old growth may be in earlier plant successional stages.

Management Direction: These timber stands will be managed as units to provide sustained habitat for existing resident spotted owls. Management units will consist of three or more adjacent stands averaging 300 acres each. Timber management activities will be designed to always maintain one stand in each of three age classes: 0-100 (young), 100-200 (intermediate) and 200-300 (old growth). Normal cultural activities will be employed in the younger age classes to approximately age 80 to achieve maximum growth and to groom the stand to meet old growth habitat objectives.

Rotation harvest will occur at approximately 300 years. No harvest will be permitted in the old growth stand until the replacement stands meet the established successional criteria.

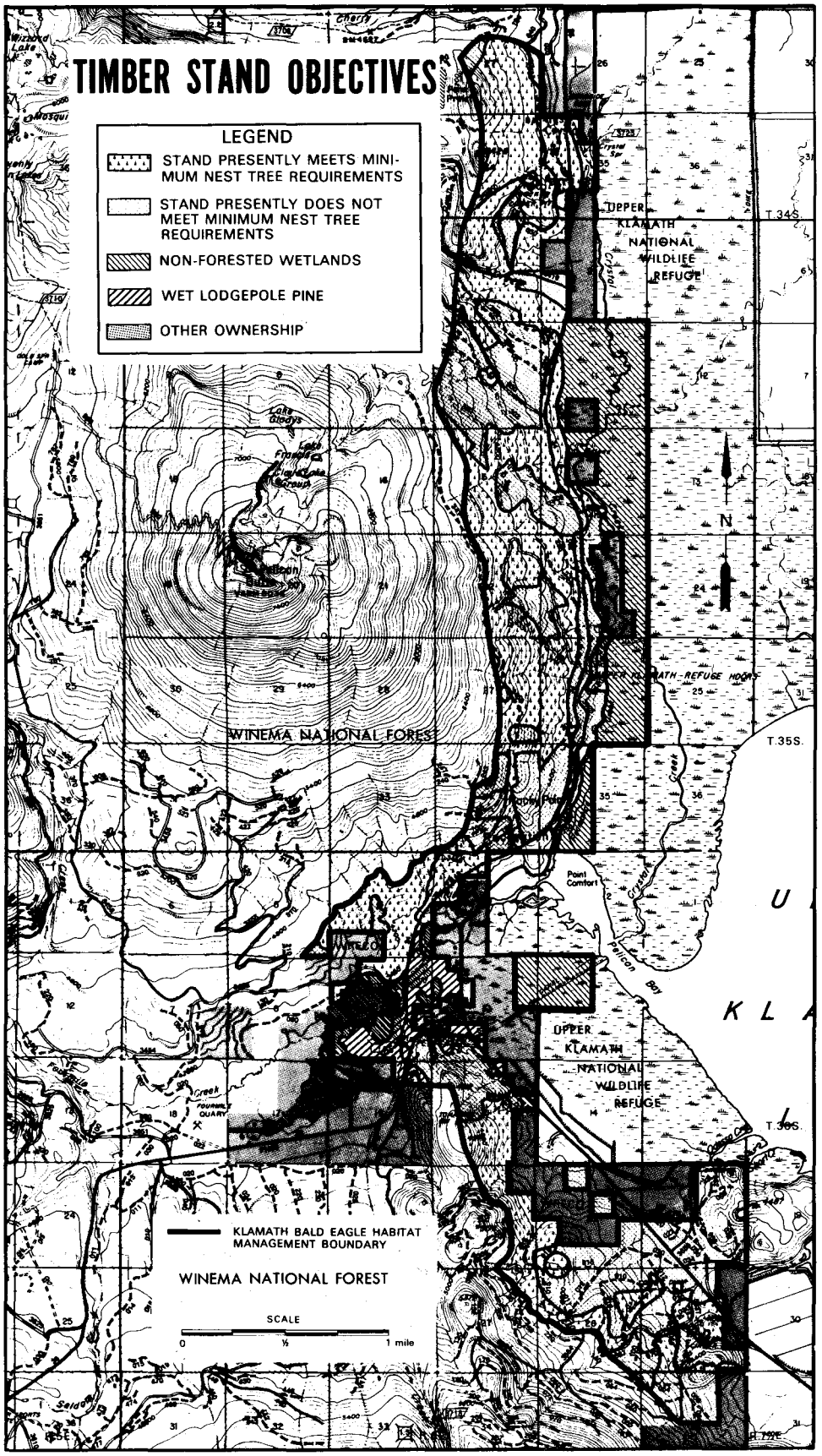
TRI Management Code	TSA (No yield)
Klamath Ranger District	W-5C

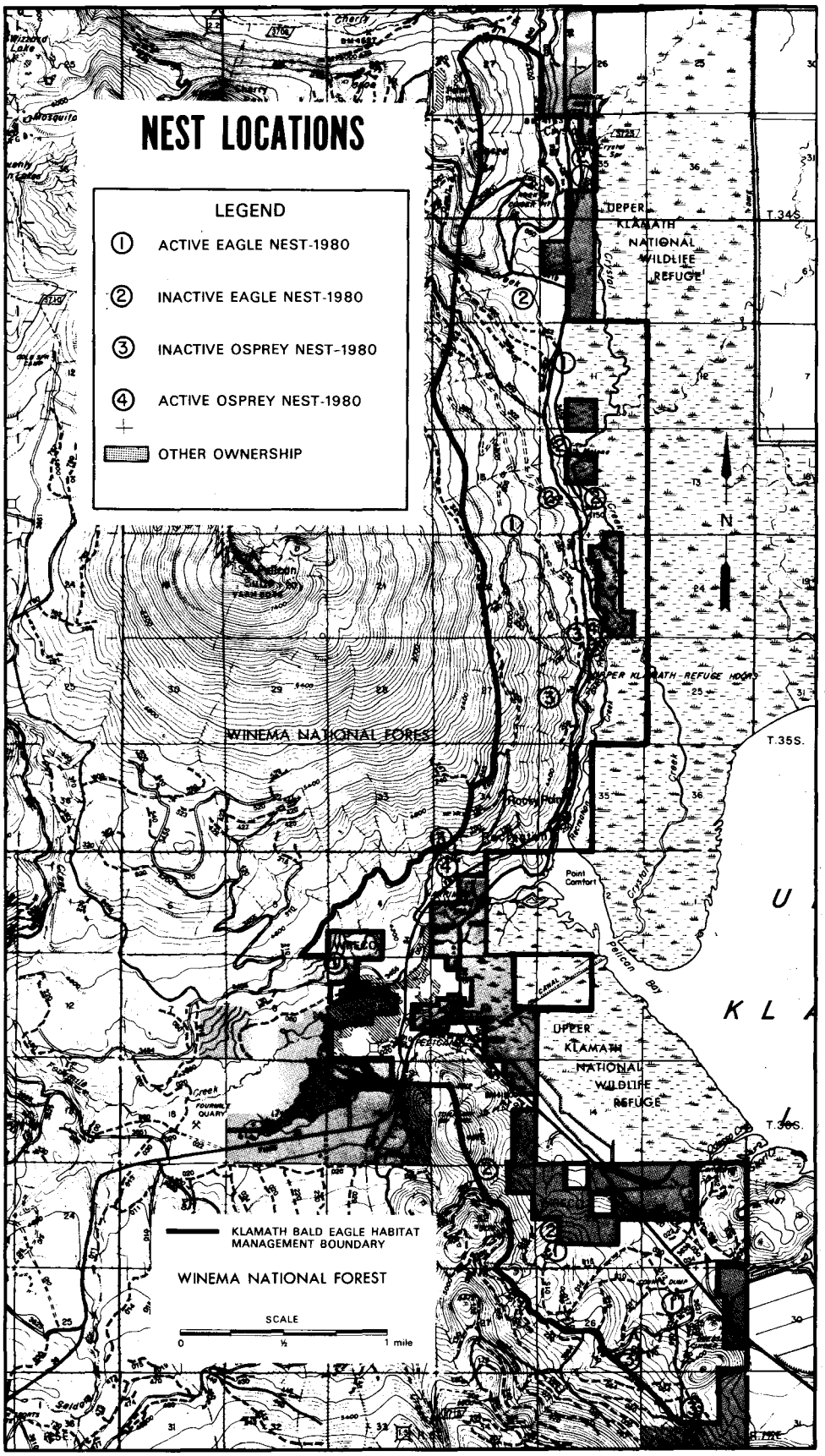
Situation: These timber stands are identified old growth spotted owl habitats meeting or exceeding size requirements, which are within or adjacent to wilderness, wilderness study or roadless areas. They are currently classified as either productive reserve, or productive deferred in the timber management land base classification system.

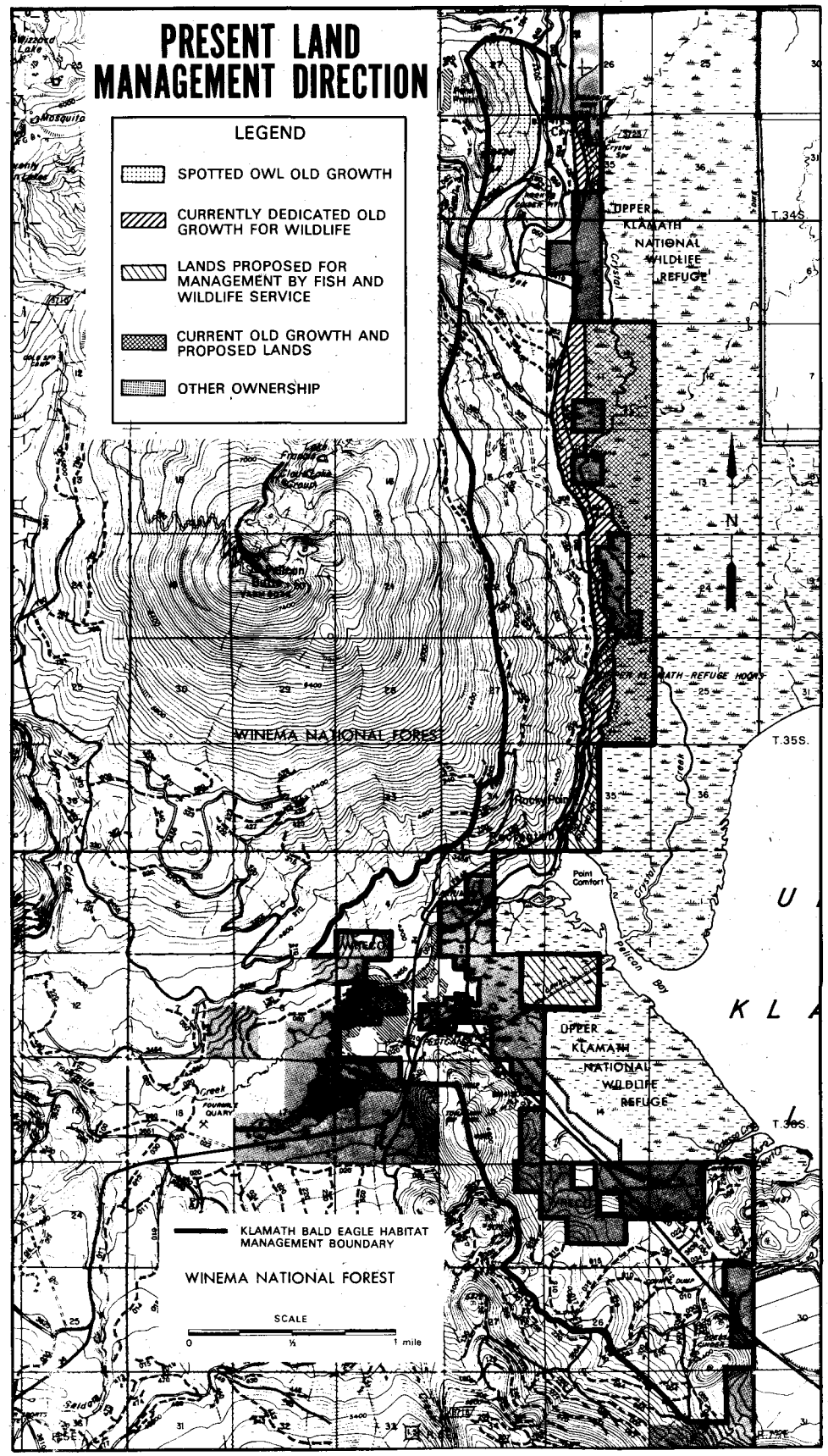
Management Direction: These stands will be maintained as natural old growth habitats for six pairs of owls inhabiting the areas. If surveys made after January 1979 identify more inhabitated territories located wholly in wilderness, wilderness study or adjacent National Park areas, they will become part of the six habitat areas maintained, replacing peripheral or adjacent areas, which could go into a standard or other classification. As survey results are obtained, management direction will be re-evaluated for these areas.

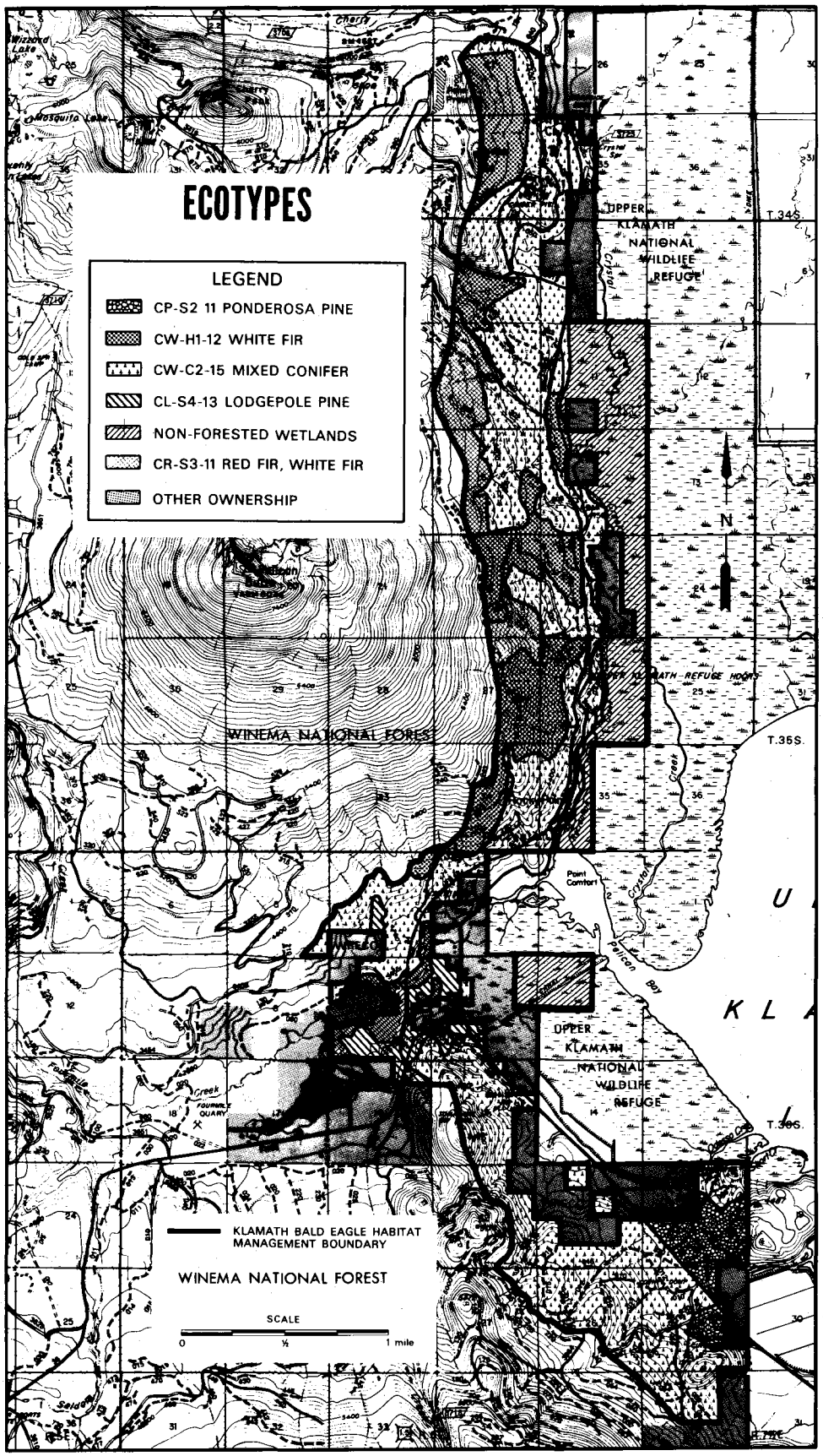
KLAMATH RANGER DISTRICT - MIXED CONIFER
WILDLIFE HABITAT (OLD GROWTH) S.I. 5S
KBWC - TM PLANNING
TSB/W-5A, B, C & D

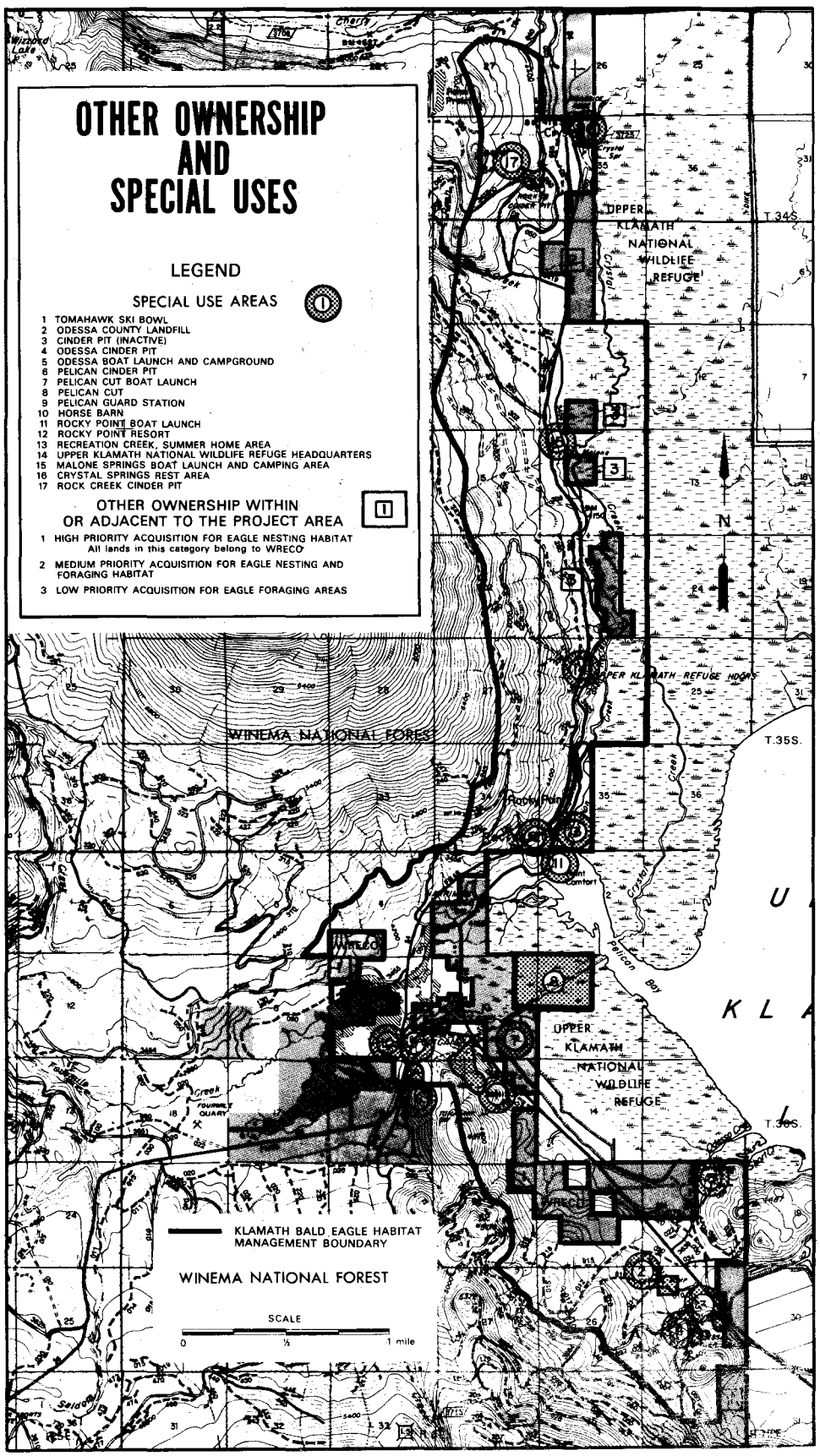
Age	Height	Diameter	Trees/Acre All	Trees/Acre Leave	Basal Area/Acre All	Basal Area/Acre Leave	Silvicultural Treatment
15	13	2	999	310	22	11	Precommercial Thin
40	42	9	300	205	113	78	Commercial Thin
60	78	11	202	145	138	99	Commercial Thin
80	89	14	144	99	163	112	Commercial Thin
100	99	17	98	68	160	111	Commercial Thin
120	105	20	67	50	140	105	Commercial Thin
140	110	22	50	50	126	126	No Treatment
160	114	23	49	49	141	141	No Treatment
180	117	24	49	49	159	159	No Treatment
200	120	26	48	48	173	173	No Treatment
220	122	27	48	48	189	189	No Treatment
235	123	28	47	15	199	64	Regeneration Shelterwood
240	124	28	15	0	65	0	Final Removal

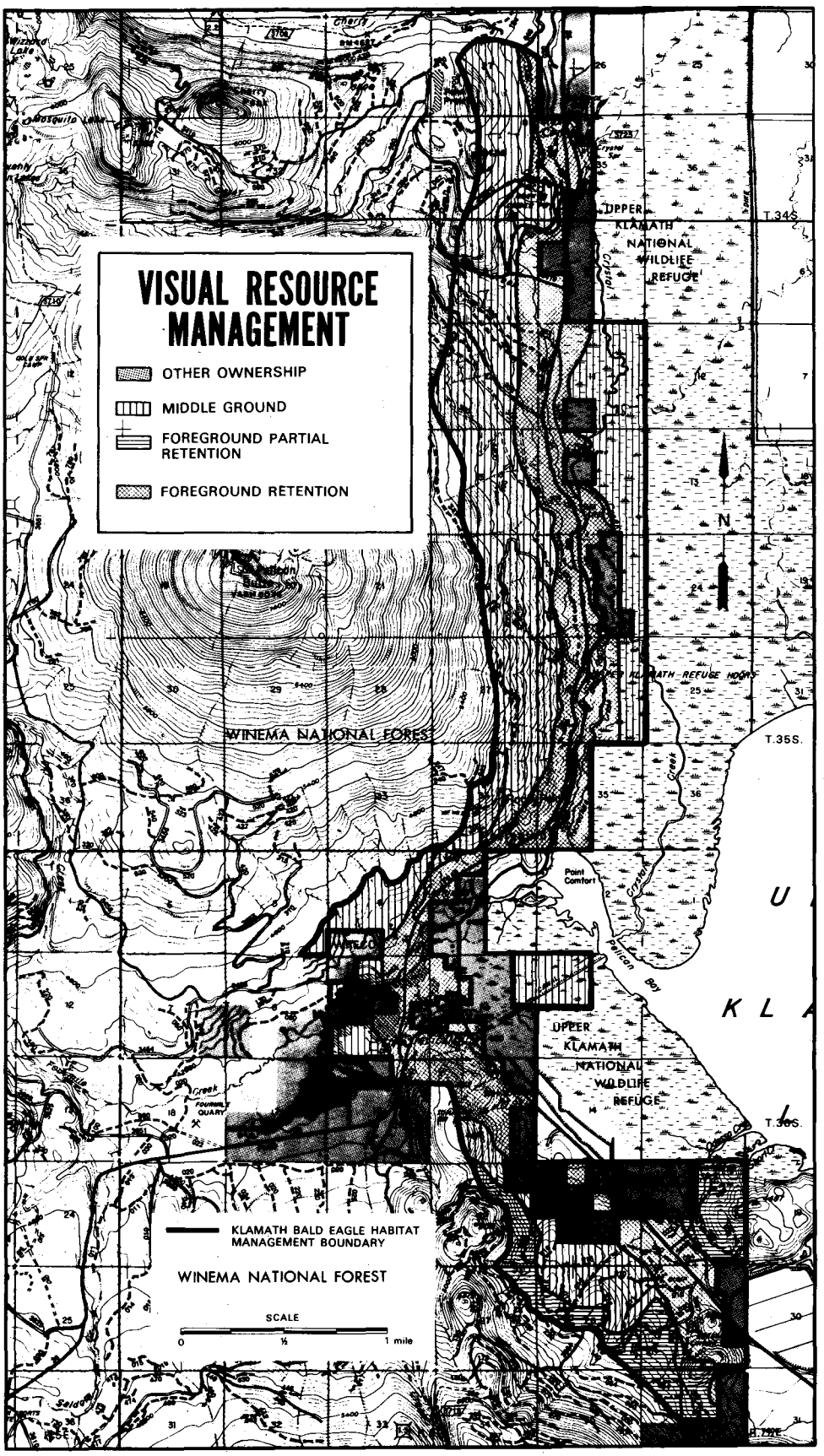

TIMBER STAND OBJECTIVES
LEGEND
STAND PRESENTLY MEETS MINIMUM NEST TREE REQUIREMENTS
STAND PRESENTLY DOES NOT MEET MINIMUM NEST TREE REQUIREMENTS
NON-FORESTED WETLANDS
WET LODGEPOLE PINE
OTHER OWNERSHIP
UPPER KLAMATH NATIONAL WILDLIFE REFUGE
WINEMA NATIONAL FORES
T.34S.
T.35S.
KLAMATH BALD EAGLE HABITAT MANAGEMENT BOUNDARY
WINEMA NATIONAL FOREST
SCALE
0
½
1 mile


NEST LOCATIONS
LEGEND
① ACTIVE EAGLE NEST-1980
② INACTIVE EAGLE NEST-1980
③ INACTIVE OSPREY NEST-1980
④ ACTIVE OSPREY NEST-1980
OTHER OWNERSHIP
KLAMATH BALD EAGLE HABITAT MANAGEMENT BOUNDARY
WINEMA NATIONAL FOREST
SCALE
0 ½ 1 mile
UPPER KLAMATH NATIONAL WILDLIFE REFUGE
WINEMA NATIONAL FOREST
T.34S.
T.35S.
T.36S.
N
Pelican Bay
Point Comfort
Crystal Creek
Wizard Lake
Mosquito Lake


PRESENT LAND MANAGEMENT DIRECTION
LEGEND
SPOTTED OWL OLD GROWTH
CURRENTLY DEDICATED OLD GROWTH FOR WILDLIFE
LANDS PROPOSED FOR MANAGEMENT BY FISH AND WILDLIFE SERVICE
CURRENT OLD GROWTH AND PROPOSED LANDS
OTHER OWNERSHIP
UPPER KLAMATH NATIONAL WILDLIFE REFUGE
WINEMA NATIONAL FOREST
T.34S.
T.35S.
T.36S.
KLAMATH BALD EAGLE HABITAT MANAGEMENT BOUNDARY
WINEMA NATIONAL FOREST
SCALE
0
½
1 mile


ECOTYPES
LEGEND
CP-S2 11 PONDEROSA PINE
CW-H1-12 WHITE FIR
CW-C2-15 MIXED CONIFER
CL-S4-13 LODGEPOLE PINE
NON-FORESTED WETLANDS
CR-S3-11 RED FIR, WHITE FIR
OTHER OWNERSHIP
UPPER KLAMATH NATIONAL WILDLIFE REFUGE
WINEMA NATIONAL FOREST
T.34S.
T.35S.
N
KLAMATH BALD EAGLE HABITAT MANAGEMENT BOUNDARY
WINEMA NATIONAL FOREST
SCALE
0
½
1 mile


OTHER OWNERSHIP AND SPECIAL USES
LEGEND
SPECIAL USE AREAS
1 TOMAHAWK SKI BOWL
2 ODESSA COUNTY LANDFILL
3 CINDER PIT (INACTIVE)
4 ODESSA CINDER PIT
5 ODESSA BOAT LAUNCH AND CAMPGROUND
6 PELICAN CINDER PIT
7 PELICAN CUT BOAT LAUNCH
8 PELICAN CUT
9 PELICAN GUARD STATION
10 HORSE BARN
11 ROCKY POINT BOAT LAUNCH
12 ROCKY POINT RESORT
13 RECREATION CREEK, SUMMER HOME AREA
14 UPPER KLAMATH NATIONAL WILDLIFE REFUGE HEADQUARTERS
15 MALONE SPRINGS BOAT LAUNCH AND CAMPING AREA
16 CRYSTAL SPRINGS REST AREA
17 ROCK CREEK CINDER PIT
OTHER OWNERSHIP WITHIN OR ADJACENT TO THE PROJECT AREA
1 HIGH PRIORITY ACQUISITION FOR EAGLE NESTING HABITAT
All lands in this category belong to WRECO
2 MEDIUM PRIORITY ACQUISITION FOR EAGLE NESTING AND FORAGING HABITAT
3 LOW PRIORITY ACQUISITION FOR EAGLE FORAGING AREAS
KLAMATH BALD EAGLE HABITAT MANAGEMENT BOUNDARY
WINEMA NATIONAL FOREST
SCALE
0
½
1 mile
UPPER KLAMATH NATIONAL WILDLIFE REFUGE
WINEMA NATIONAL FOREST
T.34S.
T.35S.
Rocky Point
Pelican Bay
Recreation Creek
Crystal Springs
Rock Creek
Malone Springs
Wizard Lake


VISUAL RESOURCE MANAGEMENT
OTHER OWNERSHIP
MIDDLE GROUND
FOREGROUND PARTIAL RETENTION
FOREGROUND RETENTION
UPPER KLAMATH NATIONAL WILDLIFE REFUGE
WINEMA NATIONAL FOREST
T.34S.
T.35S.
T.36S.
N
KLAMATH BALD EAGLE HABITAT MANAGEMENT BOUNDARY
WINEMA NATIONAL FOREST
SCALE
0
½
1 mile

Unite[illegible]a[illegible] Department of the Interior

[illegible]H AND WILDLIFE SERVICE

AREA OFFICE - IDAHO AND OREGON
4620 OVERLAND ROAD, ROOM 238
BOISE, IDAHO 83705
FTS: 554-1960 / COMM: 208/384-1960

RECEIVED
[illegible] 1981
FISH AND WILDLIFE

Leon W. Murphy
United States Department of Agriculture
Forest Service
Region 6
P. O. Box 3623
Portland, Or. 97208

Dear Mr. Murphy:

This is the U. S. Fish and Wildlife Service's (FWS) reply to your January 26, 1981, request for formal consultation (#1-4-81-F-412). This consultation addresses the proposed Klamath Bald Eagle Habitat Management Area (KBEHMA) and Plan on the Winema National Forest, and its subsequent impacts to the bald eagle (Haliaeetus leucocephalus), a species that is federally listed as threatened in the State of Oregon.

On April 9, 1981, we completed a review of the proposed KBEHMA and the documents attached with your consultation request. In the course of this review, John Goold, District Wildlife Biologist, Alan Horton, District Silviculturist, Jack Inman, Forest Biologist, Barbara Holder, Region 6 Non-Game Coordinator, Robert Anthony, Assistant Leader, Oregon Cooperative Wildlife Research Unit and Ralph Opp, Oregon Fish and Wildlife Department were contacted and provided additional information. Opp, Holder and Anthony are on the Pacific States Bald Eagle Recovery Team.

Biological Opinion

It is our biological opinion that the proposed KBEHMA and Plan (Alternative C) is likely to promote the continued existence of the bald eagle. To aid in developing a perspective for our opinion, we have included an account of the proposal.

Project Description

Through the Endangered Species Act, Sections 2(c) and 7(a)(1) and the National Forest Management Act of 1976, Section 219.10(10), the Forest Service is required to utilize its authorities in providing for conserva-

tion and management of the bald eagle and its habitat. The Klamath Ranger District of the Winema National Forest, which is located along the western edge of Upper Klamath Lake, has been an area historically used by bald eagles for nesting and wintering. Because the Klamath Ranger District provides essential habitat to bald eagles (see Fig. 1), a comprehensive and long range management plan was developed to ensure its present status and encourage an expansion of the nesting population. The plan listed objectives which would provide nest site management, foraging area protection and forest habitat manipulation for nearly 10,000 acres of bald eagle habitat.

Relative to nest site management, the assumption was made that if successful nesting habitat presently used on the Klamath District was analyzed, these conditions could be used as a model for replicating similar habitat in the future through silvicultural practices. This was predicated on studies conducted by Lehman (1980) in California. The following silvicultural prescription was developed for serving habitat objectives on the Klamath District:

1) Target stands (suitable nesting habitat) will be developed and managed to occur on at least 50% of each contiguous 40 acre tract and will be uniformly distributed throughout the project area.

2) Target stands will be multi-storied with 20-40% overstory crown closure.

3) Trees suitable for nesting will be maintained at an average of 10 per acre in target stands with a range of 5 to 15 trees per acre.

4) Potential nest trees in target stands will exceed 28 inches DBH, with an average of 38 inches DBH.

5) Preferred nest tree species, in order of priority, will be ponderosa pine, (Pinus ponderosa) sugar pine, (P. lambertiana) and Douglas fir, (Pseudotsuga menziesii).

The KBEHMA Plan also provides for monitoring of human activities for their effects on nesting and wintering bald eagles; seasonal road closures within 1/4 mile of active nests where road construction is planned; suppression of wildfires as a priority in the vicinity of nest sites; consideration of prescribed burns to achieve target stand objectives; increase to 20 chains (125 acres) the buffer zone around existing nests; and pursuit of a plan for acquiring private inholdings on a priority basis. The above description basically is the Forest Service's preferred alternative "C".

Concomitant with the KBEHMA and Plan, efforts are being made to consummate a Memorandum of Understanding (MOU) between the Forest Service, U. S. Fish and Wildlife Service and the Oregon Department of Fish and Wildlife for the cooperative management of certain lands adjacent to Upper Klamath Lake (see Fig. 2). This MOU will serve to simplify management of the wetlands foraging area.

Species Account

The bald eagle nests and winters in the Klamath Basin which is jointly shared by the states of Oregon and California. Approximately 550-600 wintering bald eagles utilize the Klamath Basin making it one of the most significant wintering areas in the western United States (Opp, 1979). About 38 occupied nest sites are known and 25 unoccupied nest sites have been recorded for the area (Isaacs, 1980).

A major habitat component of the Klamath Basin is Upper Klamath Lake, particularly the northwestern area. Currently 18 eagle nests are found in this area of which 6 were active in 1980 (Table 1). A winter roost site was recently located near Crystal Springs. The site had a peak number of 59 birds during the winter of 1981 (Goold, 1981).

Primary prey utilized by nesting bald eagles in the area consists of fish and waterfowl. The preybase may also expand to include mice, field voles and big game carrion during the winter months. Mice and field voles are essentially available primarily on private pasture lands while big game carrion may be found in a variety of habitats.

Analysis of Impacts

The successful implementation of KBEHMA and Plan will require a more intensive vegetation manipulation using even-aged and uneven-aged methods. These will be characterized by forest product yield reductions of about 10% to 20% of standard. The prinicpal aim will be to optimize bald eagle nesting and wintering habitat while integrating timber management goals.

The Forest Service believes the project area is capable of sustaining up to 10 active bald eagle nests with full implementation of the KBEHM and Plan. Fundamental to this goal is the maintenance of existing and potential nest trees through stress reduction by employing an uneven-age selection method. Those stands identified as future replacement habitat will be generated by even-aged methods to produce desirable nesting habitat as rapidly as possible. The rotation life of these methods will be 180 to 240 years. Through monitoring, on an annual basis and review of the plan every 5 to 10 years, a record will be produced to demonstrate its effectiveness and provide for mid-course corrections.

Where new nest sites or roosting areas are located specific management objectives will be developed. These objectives will be patterned after the KBEHMA model to best serve the particular use and activity by bald eagles. Since this is a dynamic process, forest stand and nest tree characteristics should be adjusted as new information becomes available (see Anthony, 1981).

Cumulative Impacts

The Klamath Basin is one of numerous areas in the northwest that provides essential habitat to bald eagles. The KBEHMA and Plan represents a progressive model which will provide direction to the Forest Service in its regional efforts to meet the needs of this species. It is another exemplary approach (See Mathisen, et al., 1978 and Lehman, 1980) by the Forest Service to secure and maintain habitat for bald eagles.

Conclusion

After examination of the proposed action, consultation with Cooperative Wildlife Research Unit and State biologists, and review of available data on bald eagles in the Klamath Basin, it is our biological opinion that the proposal will promote the conservation of the species.

This concludes formal consultation on the KBEHMA and Plan and the subsequent impacts to the bald eagle. If the proposal is significantly modified in a manner not discussed above or if new information becomes available on listed species, reinitiation of formal consultation with this Service should be considered. We would appreciate notification of your final decision on this project. Thank you for your cooperation in meeting our joint responsibilities under the Endangered Species Act.

Sincerely,

Kenneth R. Higgs
for L. A. Mehrhoff,
Area Manager

cc: RD (AFA-SE)
ES, Portland
AM, Olympia

References

Anthony, R. 1981. Letter of review - The Bald Eagle Management Plan for the Klamath Ranger District. Oregon Cooperative Wildlife Research Unit. Corvallis, 4 p.

Goold, J. 1981. Personnel Communication. Klamath Ranger District.

Isaacs, F. 1980. Oregon bald eagle productivity data - An interum report. Oregon Cooperative Wildlife Research Unit. Corvallis, 2 p.

Lehman, R. 1980. An analysis of habitat requirements and site selection criteria for nesting bald eagles in California. Wilderness Research Institute . 106 p.

Mathisen, J.E., L.D. Frenzel, T.C. Dunstan. 1977. Management strategy for bald eagles. North American Wildlife and Natural Resources Conference, 42d, Atlanta pp. 80-82

Opp, R. R. 1979. Oregon's First Annual mid-winter bald eagle survey, January 13-27, 1979. Oregon Department of Fish and Wildlife. 10 p.

BALD EAGLE NESTING DATA

Klamath Ranger District

Nest Number	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
301	D*													
302			D/A							A	A	U	NA	NA/AL
303					A	YF	A			A	NA	NA	NA	NA
304								D		A	NA	YF	YF	YF
305		D											**	
306				D				A/AL						A/AL
308					A						NA	NA	NA	NA
309						YF	A			A	U	YF	U	U
310							A				NA	NA	NA	NA
311							A	A	A		NA		NA	NA
312									NA		NA		**	
313							A	A			A	YF	YF	YF
314									D		NA	NA	NA	NA
315													D/U	U
316													D/U	U
317													D	D/U
318														YF

U = Unsuccessful nesting attempt
AL = Alternate with an active nest
D = Nest initially discovered
A = Active, no nesting attempt recorded
NA = No activity
YF = Young fledged
* = No further record, exact location unknown, activity in the area 1979 and 1980
** = Nest can no longer be located

Updated on 4/27/81

* GPO 798 - 873 1981